



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

JAN 25 2006

10 CFR 50.55a

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of) Docket No. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - AMERICAN SOCIETY OF
MECHANICAL ENGINEERS (ASME) INSERVICE INSPECTION (ISI) PROGRAM
REQUEST FOR RELIEF 1-ISI-16, 1-ISI-17, 1-ISI-18 AND 1-ISI-19

Reference: Watts Bar Nuclear Plant (WBN) Unit 1 - American Society Of Mechanical Engineers (ASME) Section XI Inservice Inspection (ISI) Summary Report For The Sixth Cycle Of Operation dated June 23, 2005.

The purpose of this letter is to request relief from ASME Section XI Code required examinations due to limitations which were identified in the WBN Unit 1 Cycle 6 Refueling Outage. These requests for relief are being submitted in accordance with 10 CFR 50.55a(g)(5)(iii).

TVA stated in the above referenced report that four requests for relief were required to be written for components examined during the inspection and those requests would be submitted under separate letter. The required examination coverage could not be achieved due to configuration of a safety injection system piping weld and the configuration of several welds on the reactor vessel.

Enclosure 1 provides request for relief 1-ISI-16 for the safety injection piping weld. Enclosures 2, 3 and 4 provide request for relief 1-ISI-17 through 1-ISI-19 for the reactor vessel welds. These examinations were performed by a contract vendor as part of the 10-year ISI reactor vessel examination. Included in Enclosures 1 through 4 are the examination data reports for the described component. Enclosure 5 provides the

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Vendor Examination Area Coverage Report for the components described in Request for Relief 1-ISI-17 through 1-ISI-19. Enclosure 6 provides the ISI Weld Location Drawings for the components described in request for relief 1-ISI-17 through 1-ISI-19.

There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter, please call me at (423) 365-1824.

Sincerely,



P. L. Pace
Manager, Site Licensing
and Industry Affairs

Enclosures

1. Request for Relief 1-ISI-16 for a Safety Injection System Piping Weld
2. Request for Relief 1-ISI-17 for the Reactor Vessel Bottom Head to Lower Shell Circumferential Weld and Bottom Head Cap to Bottom Head Spherical Ring Circumferential Weld
3. Request for Relief 1-ISI-18 for the Reactor Vessel Meridional Welds
4. Request for Relief 1-ISI-19 for the Reactor Vessel Outlet Nozzle to Vessel Welds
5. Vendor Examination Area Coverage Report
6. ISI Weld Location Drawings

cc: See Page 3

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Enclosures

cc (Enclosures):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Mr. D. V. Pickett, Senior Project Manager
U.S. Nuclear Regulatory Commission
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Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission
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Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-16

Summary:

This request for relief addresses Safety Injection System (SIS) circumferential pipe weld, SIF-D092-15. The design configuration of the subject austenitic piping weld provides single side access for examination. Single side access precludes meeting the examination coverage and qualification demonstration requirements required by 10 CFR 50.55a(b)(2)(xv)(A) and (xvi)(B).

An ultrasonic examination was performed on accessible areas to the maximum extent practical, given the physical limitations and materials of the subject weld. The design configuration and materials used limits the best effort ultrasonic examination to approximately 50 percent for tee to elbow weld, SIF-D092-15. It was concluded that performance of an ultrasonic examination of essentially 100 percent of the lower one-third of the subject circumferential pipe weld would be impractical. The maximum extent practical ultrasonic examination of the subject weld provides reasonable assurance of an acceptable level of quality and safety because the information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the weld. Therefore pursuant to 10 CFR 50.55a(g)(5)(iii), it is requested that relief be granted, for the first inspection interval.

This request for relief is similar to a previous request, 1-ISI-15, which was submitted by WBN requesting relief to be granted for two other piping welds where code coverage could not be obtained. Request for relief, 1-ISI-15, was approved in NRC safety evaluation dated January 25, 2005 (TAC Nos. MC2368 and MC2369).

System/Component(s) for Which Relief is Requested:

- Code Class 1, 6-inch Safety Injection System Tee to Elbow Weld.
- Weld Identifier: SIF-D092-15.
- Materials: 14-inch x 14-inch x 6-inch Tee - Schedule 140, SA-403, WP 316.
- 6-inch Elbow - Schedule 140, SA-403, WP 316.

Reference ISI drawing CHM-2758-C-10.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-16

Code Requirement:

WBN's Code of Record is ASME Section XI, 1989 Edition. ASME Section XI, 1989 Edition and WCAP-14572, "*Westinghouse Structural Reliability and Risk Assessment (SRRA) Model for Piping Risk Informed Inservice Inspection*," Revision 1-NP-A, dated February 1999, Table 4.1-1, Examination Category R-A, Risk-Informed Piping Examinations, Item Number R1.11, Elements Subject to Thermal Fatigue, and R1.16, Elements Subject to Intergranular Stress Corrosion Cracking (IGSCC). NRC approved the use of the WCAP for WBN in NRC's safety evaluation for the Risk Informed Inservice Inspection Program dated January 24, 2002 (TAC No. MB 2082).

The examination requirement is defined in ASME Section XI Figure IWB-2500-8(c).

Code Requirements from Which Relief is Requested:

Relief is requested from the examination coverage and qualification demonstration requirements for austenitic piping welds with single side access.

Basis for Relief:

The 10 CFR 50.55a(b)(2)(xv)(A) requires that if access is available, the weld shall be scanned in each of the four directions (parallel and perpendicular to the weld) where accessible. Coverage credit may be taken for single side exams on ferritic piping. However, for austenitic piping, a procedure must be qualified with flaws on the inaccessible side of the weld. There are currently no qualified single side examination procedures for austenitic piping welds. Current technology is not capable of reliably detecting or sizing flaws on the far side of an austenitic weld for configurations common to United States nuclear applications. The Performance Demonstration Initiative (PDI) Program conforms to 10 CFR 50.55a(b)(2)(xv)(A) regarding single side access for piping.

PDI Performance Demonstration Qualification Summary (PDQS) personnel certificates for austenitic piping list the limitation that single side examination is

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REQUEST FOR RELIEF 1-ISI-16

performed on a best effort basis. The best effort qualification is provided in place of a complete single side qualification to demonstrate that the examiners' qualification and the subsequent weld examination is based on application of the best available technology.

When the examination area is limited to one side of an austenitic weld, examination coverage does not comply with 10 CFR 50.55a(b)(2)(xvi)(B) and full coverage credit may not be claimed.

The design configuration and materials used in fabrication of the subject SIS weld precludes an ultrasonic examination of the required volume because there are no current qualified single side examination procedures that demonstrate equivalency to two-sided examination procedures on austenitic piping. The design configuration and material limits ultrasonic examination to the extent indicated:

<u>Weld</u>	<u>Best Effort Coverage</u>	ASME Section XI
		<u>Coverage</u> (Note 1)
SIF-D092-15	50 percent	100 percent

Note 1 - Coverage does not consider the inherent limitations associated with the PDI for one side access

Alternative Examinations:

In lieu of the code required examination coverage and qualification demonstration requirements, a best effort ultrasonic examination was performed, as qualified through the PDI for Supplement 2 to Appendix VIII with demonstrated best effort for single side examination. The ultrasonic examination resulted in no recorded indications. Refer to attached examination data report.

Justification for the Granting of Relief:

The best available techniques, as qualified through the PDI for Supplement 2 with demonstrated best effort for single side examination, were used from the accessible side of the weld.

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TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-16

- (1) The design configuration and materials used in the fabrication of the subject piping welds precludes ultrasonic examination of essentially 100 percent of the required examination volume. In order to examine the welds in accordance with the code requirements, the Safety Injection system would require extensive modification.

The design configuration and materials used limits the best effort ultrasonic examination to approximately 50 percent for tee to elbow weld, SIF-D092-15.

The subject weld was examined using application of the best available ultrasonic technology currently qualified.

- (2) Radiographic examination as an alternate volumetric examination method was determined to be impractical due the material thickness variation and the Risk Informed ISI Program (RI-ISI) requiring an extended coverage (weld plus 1/4-inch of base material from the transition point). The radiographic density variation does not lend for compliance with ASME Section V requirements without extensive radiographic exposures to obtain the density for the base material on the fitting side. The additional radiography required would increase personnel radiation exposure.
- (3) A Risk Informed approach provided by WCAP-14572, Revision 1-NP-A in combination with examinations performed on similar items, provides reasonable assurance that significant degradation, if present, would have been detected.

Performance of an ultrasonic volumetric examination of essentially 100 percent of the required volume of pressure retaining circumferential weld, SIF-D092-15, would be impractical. As previously discussed, TVA determined that it would be impractical to attempt other volumetric examinations in order to increase examination coverage. The maximum

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REQUEST FOR RELIEF 1-ISI-16

extent practical ultrasonic examination of the subject welds provides reasonable assurance of an acceptable level of quality and safety. Significant degradation, if present, would have been detected during the best effort ultrasonic examination that was performed on the subject welds. As a result, reasonable assurance of operational readiness has been provided.

Therefore pursuant to 10CFR 50.55a(g)(5)(iii), it is requested that relief be granted, for the first inspection interval.

Implementation Schedule:

This Request for Relief is applicable to WBN's first inspection interval. The interval began May 27, 1996 and ends December 26, 2006.

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10 YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-16

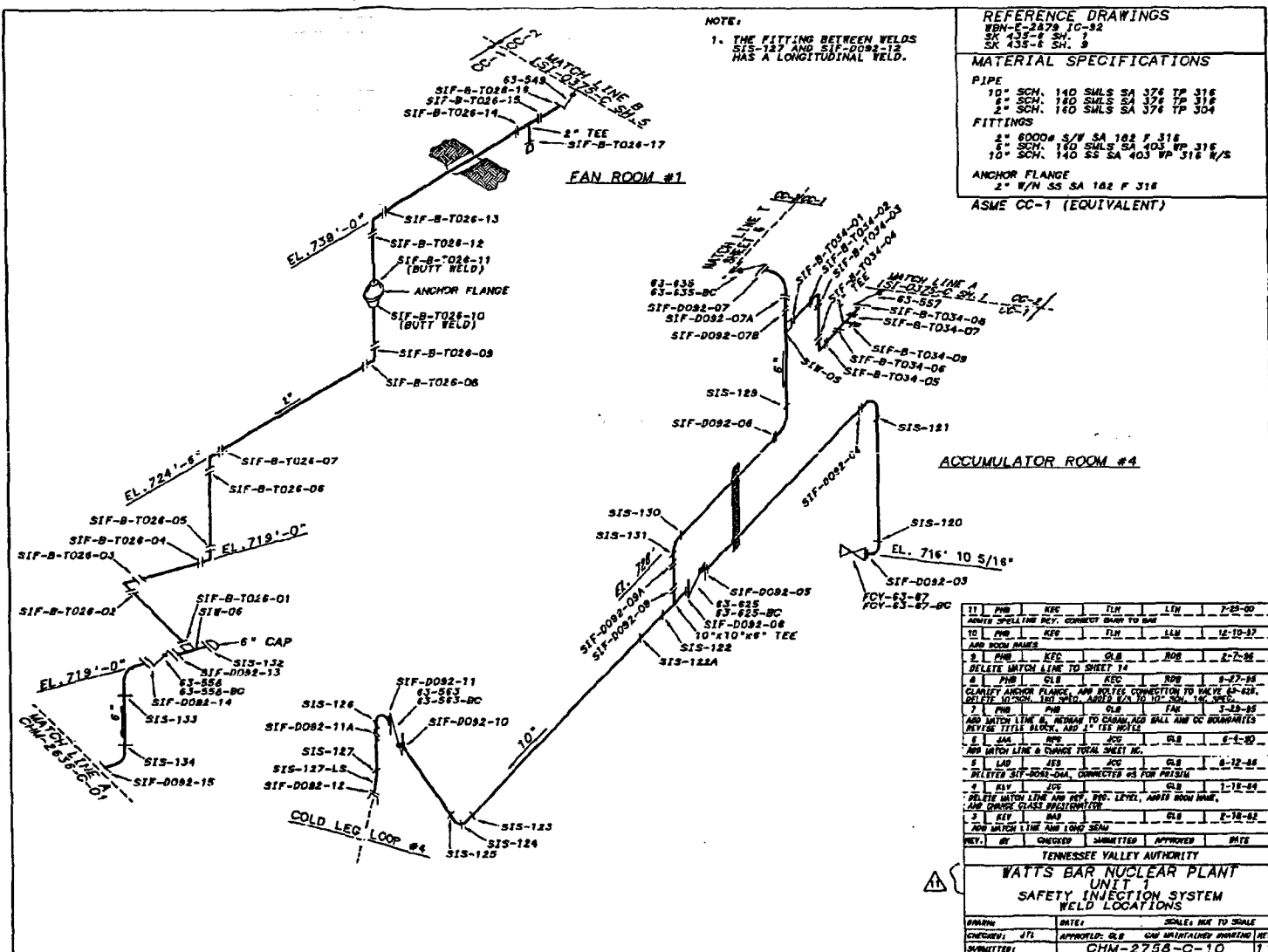
ATTACHMENTS

- Attachment 1 Weld Location ISI drawing CHM-2758-C-10
- Attachment 2 Examination Data Report R0960

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program

Attachments



Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Attachments

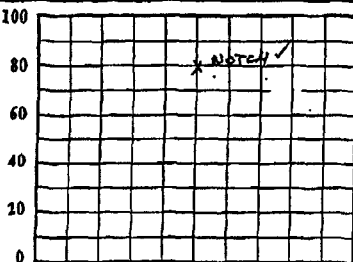
TENNESSEE VALLEY AUTHORITY		EXAMINATION SUMMARY AND RESOLUTION SHEET		REPORT NUMBER: 0960	
PROJECT: WBN UNIT: 1		CYCLE 06		COMPONENT ID: SIF-D092-15	
EXAMINATION METHOD				SYSTEM: SIS ISI DWG NO: CHM-2758-CJ10-1	
MT ☐	PT ☐	UT ☒	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: N-UT-64		REV 7 / TC: N/A		PEEL TO PC PIPE	Ⓟ R-A ✓
EXAMINER:		EXAMINER:		EXAMINER:	EXAMINER:
JASON POLISENSKY		N/A		N/A	N/A
LEVEL: II		LEVEL:		LEVEL:	LEVEL:
Total coverage calculated to be approximately 100 % ①					
THE ABOVE MENTIONED WELD IS A 6" STAINLESS STEEL 45° ELBOW TO TEE WELD					
THIS EXAM WAS SINGLE SIDED DUE TO TEE CONFIGURATION					
A 45° SHEAR .375" 2.25MHZ AND A 60RL 2(BX10mm) 2MHZ WERE CALIBRATED ON THE ALT CAL BLOCK 1.0" NOTCH					
NO RECORDABLE INDICATIONS					
Ⓟ This exam satisfies dual credit criteria for ASME Section XI, Category E-A, Item R-16 and Augmented Criteria of I-TS-D-10 REV12, Category 1A. With Weld 3/1/05					
① 100% ASME Section XI code coverage obtained 50% ASME Section XI, App VIII. qualified coverage obtained					
RESOLUTION BY: <i>Joan Rahimov</i>		REVIEWED BY: <i>Walter Welch</i>		ANII: <i>B. Engh</i>	
LEVEL II DATE: 3/1/05		LEVEL: III DATE: 3/2/05		DATE: 3/16/05	
				Page: 1 OF 5	

ACCESS: FORMS DATABASE R-10/04/01

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Attachments

TENNESSEE VALLEY AUTHORITY		DIGITAL ULTRASONIC CALIBRATION DATA SHEET		REPORT NUMBER <u>0960</u>							
PROJECT <u>WBN</u> UNIT/CYCLE <u>1106</u>		CALIBRATION DATE: <u>3/1/05</u>		CALIBRATION BLOCK NO. <u>WB 83</u> ✓ TEMP: <u>70 °F</u>							
PROCEDURE: <u>N-UT-64</u> REV: <u>7</u> TC: <u>N/A</u>		SIMULATOR BLOCK: <u>792770</u> ✓		THERMOMETER SN: <u>562773</u> DUE DATE: <u>6-9-05</u>							
TRANSDUCER		COUPLANT: <u>ULTRAGEL</u> BATCH: <u>01225</u> ✓		ANGLE VERIFICATION							
MANUFACTURER <u>KBA</u>		BLOCK TYPE: <u>Range</u> SN: <u>792770</u>		NOMINAL ANGLE: <u>45</u> ACTUAL ANGLE: <u>44 °</u>							
MODEL: <u>COMP G</u> SN: <u>00W27L</u> ✓		INSTRUMENT		MANUFACTURER: <u>KBA</u> DUE DATE: <u>6-4-05</u>							
SIZE: <u>375</u> FREQ: <u>2.25</u> MHz		MODEL NO.: <u>USN 52L</u> SN: <u>E30220</u> ✓		INSTRUMENT SETTINGS							
SHAPE: <u>End</u> # ELEMENTS: <u>1</u> # CONS: <u>0</u>		REFLECTOR		REFERENCE SENSITIVITY							
CABLE TYPE <u>RG-174</u> LENGTH: <u>6</u>		SCAN DIRECT. NTC SDH		MEMORY NUMBER							
MODE: ☒ SHEAR ☐ LONG ☐ RL		AXIAL ☒ CIRC. ☐		13 dB 8							
DAC		FREQ: <u>2.8</u> MHz		REJECT: <u>0 %</u> ✓							
		ANGLE: <u>44</u> deg		DAMPING: <u>1000</u> ohms							
		DELAY: <u>0.000</u> msec		PULSER: <u>SINGLE</u> /							
		ZERO: <u>5.001</u> msec		PRR/PRF: <u>HIGH</u> ✓							
		VELOCITY: <u>1.254</u> msec		TOF: <u>PEAK</u>							
		RANGE: <u>2.700</u> inches		POWER: <u>BAT</u>							
DISPLAY WIDTH <u>2.7</u> inches		DISP. MODE: <u>FULL WAVE</u>									
REF. REFLECTOR: <u>FAR SDH</u> GAIN: <u>21.25</u> dB		CALIBRATION TIMES									
AMPLITUDE: <u>50 %</u> METAL PATH: <u>.992</u>		INITIAL TIME: <u>0200</u> FINAL TIME: <u>0400</u>									
VERIFICATION TIMES 1) <u>0300</u> 2) <u>N/A</u> 3) <u>N/A</u>		4) <u>N/A</u> 5) <u>N/A</u> 6) <u>N/A</u> 7) <u>N/A</u> 8) <u>N/A</u> 9) <u>N/A</u>									
*PDI QUALIFIED INSTRUMENT SETTINGS: VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!											
LINEARITY CHECK											
VERTICAL	SIGNAL 1	100	90	80	70	60	50	40	30	20	
	SIGNAL 2	50	45	40	35	30	25	20	15	10	
ATTENUATOR	GAIN SET	-6 dB	-12 dB	SET	+12	SET	+6				
	AMP 80%	32 TO 48	16 TO 24	20%	64 TO 96	40%	64 TO 96				
		40	20		80		80				
SIX-DIGIT-15											
EXAMINER: <u>John Polansky</u> LVL: <u>I</u>						ANALYST: <u>B. Smith</u>					
EXAMINER: <u>N/A</u> LVL: <u></u>						DATE: <u>3/1/05</u>					
REVIEWER: <u>Walter Welch</u> LVL: <u>III</u> DATE: <u>3/2/05</u>						PAGE <u>2</u> OF <u>5</u>					

LOGGING FORMS DATABASE 1047501

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Attachments

TENNESSEE VALLEY AUTHORITY		DIGITAL ULTRASONIC CALIBRATION DATA SHEET		REPORT NUMBER <u>0960</u>							
PROJECT WBN UNIT/CYCLE <u>1106</u>		CALIBRATION DATE: <u>3/1/05</u>		CALIBRATION BLOCK NO. <u>WB83</u> TEMP: <u>70 °F</u>							
PROCEDURE: <u>NUT-64</u> REV: <u>7</u> TC: <u>N/A</u>		SIMULATOR BLOCK: <u>792770</u> ✓		THERMOMETER SN: <u>562773</u> DUE DATE: <u>6-9-05</u>							
MANUFACTURER <u>RTD</u>		COUPLANT: <u>ULTRAGEL</u> BATCH: <u>02225</u> ✓		ANGLE VERIFICATION							
MODEL: <u>TRLA</u> SN <u>99-1219</u>		BLOCK TYPE: <u>RAMPS</u> SN: <u>792770</u> ✓		NOMINAL ANGLE: <u>60</u> ✓ ACTUAL ANGLE: <u>60</u> °							
SIZE: <u>2 (8x14) mm</u> ✓ FREQ: <u>2.0</u> MHz		INSTRUMENT		MANUFACTURER: <u>KBA</u> DUE DATE: <u>6-4-05</u>							
SHAPE: <u>RECT</u> # ELEMENTS: <u>2</u> # CONS: <u>0</u>		MODEL NO.: <u>USA 52 L</u> SN: <u>E30220</u> ✓		INSTRUMENT SETTINGS							
CABLE TYPE: <u>(2) RG-174</u> LENGTH: <u>6'</u>		MODE: ☒ SHEAR ☐ LONG ☐ RL		REFLECTOR							
DAC		SCANDIRECT: ☐ NTC ☒ SDH ☐		REFERENCE SENSITIVITY							
DISPLAY WIDTH <u>3.500</u> inches		AXIAL ☒ CIRC. ☐		MEMORY NUMBER							
		FREQ: <u>2.0</u> MHz ✓		REJECT: <u>0</u> %							
		ANGLE: <u>60</u> deg ✓		DAMPING: <u>1000</u> ohms ✓							
		DELAY: <u>0.000</u> msec		PULSER: <u>DUAL</u> ✓ *							
		ZERO: <u>8.800</u> msec		VELOCITY: <u>2.284</u> msec ✓							
		RANGE: <u>3.500</u> inches		PRR/TRF: <u>HIGH</u> ✓							
		DISP. MODE: <u>FULL WAVE</u>		TOF: <u>PEAK</u>							
		POWER: <u>BAT</u>									
REF. REFLECTOR: <u>FAR SDH</u> GAIN: <u>56</u> dB		CALIBRATION TIMES		INITIAL TIME: <u>0210</u> FINAL TIME: <u>0405</u>							
AMPLITUDE: <u>75</u> % METAL PATH: <u>1.548</u>		VERIFICATION TIMES		1) <u>0310</u> 2) <u>N/A</u> 3) <u>N/A</u> 4) <u>N/A</u> 5) <u>N/A</u> 6) <u>N/A</u> 7) <u>N/A</u> 8) <u>N/A</u> 9) <u>N/A</u>							
*PDI QUALIFIED INSTRUMENT SETTINGS: VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!											
LINEARITY CHECK											
VERTICAL	SIGNAL 1	100	90	80	70	60	50	40	30	20	
	SIGNAL 2	50	45	40	35	30	25	20	15	10	
ATTENUATOR	GAIN SET	-6 dB	-12 dB	SET	+12	SET	+6				
	AMP	80%	32 TO 48	16 TO 24	20%	64 TO 96	40%	64 TO 96			
SIF-D092-J5											
EXAMINER: <u>James P. Smith</u> LVL: <u>II</u>											
EXAMINER: <u>N/A</u> LVL: <u></u>											
REVIEWER: <u>Mark Welch</u> LVL: <u>III</u> DATE: <u>3/4/05</u>											
AND: <u>B. Smith</u>											
DATE: <u>3/11/05</u>											
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ACCESS: 508MS DATABASE 10/27/01

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Attachments

TENNESSEE VALLEY AUTHORITY				MANUAL ULTRASONIC PIPING EXAMINATION DATA SHEET				REPORT NUMBER <u>8960</u>			
PROJECT: <u>WBN</u> UNIT/CYCLE <u>1106</u>				EXAMINATION DATE <u>3/1/05</u>							
SYSTEM: <u>SW</u>				START TIME: <u>0300</u> END TIME: <u>0330</u>							
WELD ID: <u>SIF-D092-15</u>				EXAM SURFACE ☐ ID ☒ OD							
CONFIG: <u>PEEL</u> TO <u>PC PIPE</u>				MATERIAL TYPE: ☐ CS ☒ SS ☐ CSCL ☐ CCSS							
FLOW →				SURFACE TEMP.: <u>82</u> PYRO NO. <u>562773</u>							
PROCEDURE: <u>N-UT-64</u> REV: <u>7</u> TC: <u>N/A</u>				EXAMINATION ANGLE <u>45</u> DEG. <u>60</u> DEG.							
W ₀ REFERENCE: <u>WELD CENTERLINE</u>				AXIAL SCAN SENSITIVITY <u>31</u> dB <u>62</u> dB							
L ₀ REFERENCE: <u>OUTSIDE RADIUS OF FLOW</u>				CIRC. SCAN SENSITIVITY <u>31</u> dB <u>N/A</u> dB							
IND NO.	L (in) FROM REF.		AT MAX AMP			MAX AMP % DAC	EXAM NO. 3-14	NOM. ANG.	NRI	INDICATION INFORMATION: TYPE, DAMPING, ETC.	
	L1	L Max	L2	W MAX	MP MAX						D MAX
							3	45	☒		
							4	45	☒	NO SCAN 4 DUE TO CONFIGURATION	
							5	45	☒		
							6	45	☒		
							3	60	☒		
							4	60	☒	NO SCAN 4 DUE TO CONFIGURATION	
REMARKS/LIMITATIONS											
60° RL SCANNED AT REFERENCE DR DUE TO GRAIN NOISE.											
MAINTAINED 10% TO 20% ID ROLL											
EXAMINER: <u>Jason R. Hines</u> LEVEL: <u>II</u>								ANTI: <u>B. Emigh</u>			
EXAMINER: <u>N/A</u> LEVEL: <u> </u>								DATE: <u>3/1/05</u>			
REVIEWED BY: <u>Mark Welch</u> LEVEL: <u>III</u> DATE: <u>3/4/05</u>								PAGE <u>4</u> OF <u>5</u>			

ACCESS: FORMS DATABASE 10/18/01

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society Of Mechanical Engineers (ASME)
 Inservice Inspection Program

Attachments

TVA	WALL THICKNESS PROFILE SHEET	REPORT NO: 0960																														
PROJECT: <u>WBN</u>		WELD NO: <u>SIF-D092-15</u>																														
UNIT: <u>1</u>		SYSTEM: <u>SIS</u>																														
Record Thickness Measurements As Indicated, Including Weld Width, Edge-To-Edge At 0° <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Position</th> <th>0°</th> <th>90°</th> <th>180°</th> <th>270°</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>.771</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>.778</td> <td>N</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>.791</td> <td></td> <td></td> <td>R</td> </tr> <tr> <td>4</td> <td>N/A</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>N/A</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Position	0°	90°	180°	270°	1	.771				2	.778	N			3	.791			R	4	N/A				5	N/A					
Position	0°	90°	180°	270°																												
1	.771																															
2	.778	N																														
3	.791			R																												
4	N/A																															
5	N/A																															
CROWN HEIGHT: <u>FLUSH</u>		DIAMETER: <u>6.0"</u>																														
CROWN WIDTH: <u>1.0"</u>		WELD LENGTH: <u>20.5"</u>																														
EXAMINER: <u>John Polinsky</u>	REVIEWED BY: <u>Walter Welch</u>	ANALYST: <u>B. Earnigh</u>																														
LEVEL: <u>II</u>	LEVEL: <u>III</u>	DATE: <u>3/11/05</u>																														
DATE: <u>3/11/05</u>	DATE: <u>3/2/05</u>	PAGE <u>5</u> OF <u>5</u>																														

TVA 1968 (NPS-87)

1-100-533-44

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-17

Summary:

Due to design configuration of the reactor vessel, volumetric examination of the bottom head to lower shell circumferential weld and bottom head cap to bottom head spherical ring circumferential weld during the Unit 1 Cycle 6 Refueling Outage resulted in less than essentially 100 percent of ASME code coverage being achieved. The design configuration of the core barrel support lugs and lower head penetrations interferes with performance of an ultrasonic scan of these circumferential welds, thus preventing essentially 100 percent examination of the required full volume. Volumetric examination of these components is required in accordance with ASME Section XI, Table IWB-2500-1, Examination Category B-A, Item Numbers B1.11 and B1.21. The full volume weld examination requirement is illustrated by ASME Section XI Figures IWB-2500-1 and IWB-2500-3.

An ultrasonic examination was performed on accessible areas to the maximum extent practical, given the physical limitations of the welds. The design configuration limits the best effort ultrasonic examination to approximately 72 percent of the required volume of the bottom head to lower shell Circumferential Weld, W02-03, and 60 percent of the required volume of the bottom head cap to bottom head spherical ring Circumferential Weld, W01-02. The volumetric examinations resulted in no recordable indications for both of the welds. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the circumferential welds.

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested from the extent of examination requirement due to physical restrictions. Relief is requested from these examinations because the code requirement is impractical to implement.

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-17

System/Component(s) for Which Relief is Requested:

- Code Class 1 Reactor Pressure Vessel Circumferential Welds:
 - Bottom Shell to Lower Head Circumferential Weld, W02-03.
 - Bottom Head Spherical Ring to Bottom Cap Circumferential Weld, W01-02.

Reference ISI Drawing ISI-0427-C-01 and ISI-0427-C-06.

Code Requirement:

WBN's Code of Record is ASME Section XI, 1989 Edition. ASME Section XI, 1989 Edition, Table IWB-2500-1, Examination Category B-A, Item Numbers B1.11, Reactor Vessel Circumferential Shell Weld, volumetric examination requirement as defined by Figure IWB-2500-1 and B1.21, Reactor Vessel Circumferential Head Weld, volumetric examination requirement as defined by Figure IWB-2500-3.

Code Requirements from Which Relief is Requested:

Relief is requested from the volumetric examination coverage of essentially 100 percent of one reactor vessel circumferential shell weld (W02-03) and one circumferential head weld (W01-02).

Basis for Relief:

The design configuration of the reactor vessel precludes a complete volumetric examination of the required volume for Circumferential Shell Weld, W02-03, and Circumferential Head Weld, W01-02. The limitation is due to the core barrel support lugs and the lower head penetrations. The configuration limits the volumetric examination to 72 percent and 60 percent of the required volume. Refer to Enclosure 5, Examination Area Coverage Report for Watts Bar Nuclear Plant, for vendor discussion of examination coverage calculation.

Alternative Examinations:

In lieu of the code required 100 percent volumetric examination, an ultrasonic examination was performed on accessible areas to the maximum extent practical given the physical limitations associated with the two circumferential

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-17

welds. Refer to Enclosure 2 Attachments for the examination data reports.

Justification for the Granting of Relief:

The design configuration of the reactor vessel precludes ultrasonic examination of essentially 100 percent of the bottom head to lower shell Circumferential Weld, W02-03 and bottom head cap to bottom head spherical ring Circumferential Weld, W01-02. The circumferential weld examinations were performed using automated ultrasonic (AUT) scanning equipment and AUT data recording/analysis systems. The target scope of the examinations included 100 percent of the accessible weld. The examination coverage requirements for these circumferential welds are discussed in Enclosure 5, Examination Area Coverage Report for Watts Bar Nuclear Plant.

Examination of the bottom head to lower shell Circumferential Weld, W02-03, is obstructed by the core barrel stabilizing lugs. The design configuration allows for ultrasonic examination of approximately 72 percent of the required volume. The ASME Section XI code requirements for reflectors oriented parallel and transverse to the weld stipulate that the angle beam search units shall be aimed, with the search unit manipulated, so that the ultrasonic beams pass throughout the entire volume of weld metal. The required examination volume E-F-G-H is depicted on ASME Section XI Figure IWB-2500-1. A total of six core support lugs are welded to the reactor vessel inside surface and are equally spaced circumferentially adjacent to Weld W02-03 (reference ISI drawing ISI-0427-C-06 in Enclosure 6). Each core support lug attachment is approximately 12.80 inches in width and 23.30 inches in length. Due to location of the support lugs in relation to Weld W02-03, the lugs limits two direction parallel and transverse coverage from the lug side of the circumferential weld. The support lugs restrict the ultrasonic search unit scan surface where attached to the vessel.

Examination of the bottom head cap to bottom head spherical ring Circumferential Weld, W01-02, is obstructed by the bottom head penetrations. The design configuration allows for ultrasonic examination of approximately 60 percent of the required volume. The ASME Section XI code requirements for reflectors oriented parallel and transverse to the weld stipulate that the angle beam search units shall be aimed,

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
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REQUEST FOR RELIEF 1-ISI-17

with the search unit manipulated, so that the ultrasonic beams pass throughout the entire volume of weld metal. The required examination volume A-B-C-D is depicted on ASME Section XI Figure IWB-2500-3. A total of fifty-eight instrumentation tubes penetrate the bottom head. The bottom head penetration limits two direction parallel and transverse coverage of the circumferential weld. The penetrations restrict the ultrasonic search unit scan surface where the instrumentation tubes are near Weld W01-02.

In order to examine the circumferential welds in accordance with the code requirement, the reactor vessel would require extensive modification. This modification would be impractical to implement. Other examination techniques were also determined to be impractical for this configuration.

Reactor Vessel Circumferential Welds, W02-03 and W01-02, received limited two-directional parallel and two-directional transverse coverage. The results of these examinations recorded no reportable indications in Welds W02-03 and W01-02. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the circumferential welds.

Conformance with the referenced code requirement is impractical, therefore, this request for relief is submitted pursuant to 10 CFR 50.55a(g)(5)(iii).

Implementation Schedule:

This request for relief is applicable to WBN's first inspection interval which began May 27, 1996 and ends December 26, 2006.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM
REQUEST FOR RELIEF 1-ISI-17

ATTACHMENTS

1. Examination Data Reports for Weld W01-02 Pg E2A-2
2. Examination Data Reports for Weld W02-03 Pg E2A-26

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-17

Attachments

ISWT Examination Summary Record

Project No: 368		Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300028			
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Circumferential Weld W01-02 Bottom Head Cap to Bottom Head Spherical Ring							
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	N R L	H E R	Analysis	Resolution Record	CNF No.	Remarks
AUT	ISWT-PDI-AUT1/0/0 ICN 2	1-4	AUTO	-	-				AUTO for thickness measurement only. Examination limited due to lower head penetrations.
		1,2	AUTSLIC40	X	-	VM			
		1,2	AUT55	X	-	VM			
		3,4	AUTSLIC40T	X	-	VM			
		3,4	AUT55T	X	-	VM			
Prepared By:		Date:		Page:		Summary No:			
Garry Cogdun		12-Mar-05		1 OF 1		300028			

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E2A-2

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-17

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W01-02		Pro/Rev/Chg/ICN: ISWT-PDI-AUT10/0/1&2		Examination No.: 1			
Project No.: 04-0368		Weld Description: B11 Cap-to-DB SpH Reg (5'-18.5")		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07A		Scan Path Drawing: SP-W01-02		Exam Date: 09 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: Alan Schaefer / N/A						Start: 1952		End: 2249	
						Start: 78		End: 78	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		500		498		Planned	
Scan: Boom Pivot		Upper Limit		18536		18538		Actual	
Increment: Boom Rotate		Increment Interval		5.4		DCI		3	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Degree		Conversion Units		Degrees	
Correction: Default		Radius In.		88.19		Radius In.		88.19	
Module Parameters: 07A		Cal 13				Calibration Records: WAT-13		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		55		(-)		- 1.40(in)		- 1.35(in)	
Channel 2 On		55		(1)		+ 1.40(in)		+ 1.35(in)	
Channel 3 On		SLJC 40		(-)		- 2.00(in)		+ 1.72(in)	
Channel 4 On		SLJC 40		(1)		+ 2.00(in)		+ 1.72(in)	
Channel 5 On		01		(1)		+ 0.00(in)		+ 1.72(in)	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Examination Remarks: Limited examination due to the proximity of the lower head instrumentation tubes.									
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☒ Yes ☐ No	
	Start	Stop	Start	Stop					
See attachment					Channel 1	☒	☐	☐	
					Channel 2	☒	☐	☐	
					Channel 3	☒	☐	☐	
					Channel 4	☒	☐	☐	
					Channel 5	☒	☐	☐	
					Channel 6	☒	☐	☐	
					Channel 7	☒	☐	☐	
					Channel 8	☒	☐	☐	
Analyst / SNT Level / Date: <i>Vic Nantz / III / 10 MAR 2005</i>									

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservive Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

[illegible]

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
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Attachments

Exam Number 1

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Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

28.50 - 29.43
14.92 - 19.78
2.29 - 2.94

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

15.81 - 20.67
31.42 - 32.35

Feature Analysis
Comments.

Channel 1
Summary

:
:
:
:

No Recordable Indications Channels
1, 2, 3, 4, and 5

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

15.81 - 20.67
25.57 - 26.50

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

13.65 - 18.50
31.00 - 31.93

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

13.65 - 18.50
25.99 - 26.92

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

13.65 - 18.50
28.51 - 29.44

Vic [Signature] III 10 MAR 2005



**IHI SOUTHWEST TECHNOLOGIES
AUTOMATED ULTRASONIC EXAMINATION RECORD**

Site/Plant: Watts Bar	Weld Identification: RPV-W01-02	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 2
Project No.: 04-0368	Weld Description: BH Cap-to-BH Sph Ring (181"-360")	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W01-02	Exam Date: 10 March 2005	Examination Time: Start 0025, End 0410
Data Acquisition Operator(s) / SNT Level: Alan Schaefer / N/A		Surface Temperature °F: Start 78, End 78	

Data Acquisition

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	18400	18400	Lower Limit	2839	2839	Beam Direction:	Dn/Up
Scan:	Boom Pivot	Upper Limit	36598	36598	Upper Limit	4474	4474	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	54		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	338
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	0.00
Correction:	Default	Radius In.	88.19		Radius In.	88.19		Hoist (Pivot Point):	324.05

Module Parameters:		07A	Cal 13	Calibration Records:		Examination Notes:	
Status	Angle	Direction	Scan Offset	Step Offset	WAT-13		
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301	Check for limitations due to the proximity of the lower head instrumentation tubes.
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302	
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303	
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the lower head instrumentation tubes.
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	Partial examination.

Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☒ Yes ☐ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 1 A/B Analysis Tape/CD No.: N/A
	Start	Stop	Start	Stop				
See Attachment					Channel 1 ☐	☒	☐	
					Channel 2 ☐	☒	☐	
					Channel 3 ☐	☒	☐	
					Channel 4 ☐	☒	☐	
					Channel 5 ☐	☐	☒	
					Channel 6 ☐	☐	☒	
					Channel 7 ☐	☐	☒	
					Channel 8 ☐	☐	☒	

Analyst / SNT Level / Date:

Vis N/A / III / 10 MAR 2005

ISWT FORM No. UT 50 (Rev. 05/92)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17
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Enclosure 2

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-7

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 2

Page 1 of 1 

Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1	
Scan Axis	30.78 - 31.71
Inc. Axis	193.92 - 198.78
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	194.80 - 199.66
Scan Axis	33.70 - 34.63

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	194.80 - 199.66
Scan Axis	27.85 - 28.78

	Channel 3
Module Coordinates	
Inc. Axis	192.64 - 197.50
Scan Axis	33.28 - 34.21

	Channel 4
Module Coordinates	
Inc. Axis	192.64 - 197.50
Scan Axis	28.27 - 29.20

	Channel 5
Module Coordinates	
Inc. Axis	192.64 - 197.50
Scan Axis	30.79 - 31.72

Vic [signature] LEVEL III 10 MAR 2006



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W01-02	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 2a
Project No.: 04-0368	Weld Description: B1 Cap-to-BH Sph Ring (183°-364°)	Device Configuration: WAT-WAI-CON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W01-02	Exam Date: 10 March 2005	Examination Time: Start 0412, End 0418
Data Acquisition Operator (s) / SNT Level: Alan Schaefer / N/A			Surface Temperature °F: Start 78, End 78

Data Acquisition

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	18400	36326	Lower Limit	2839	2839	Beam Direction:	Dn/Up
Scan:	Boom Pivot	Upper Limit	36598	36598	Upper Limit	4474	3772	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	54		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	338
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	0.00
Correction:	Default	Radius In.	88.19		Radius In.	88.19		Hoist (Pivot Point):	324.05

Module Parameters: 07A Cal 13						Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset		WAT-13	Check for limitations due to the proximity of the lower head instrumentation tubes.
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301	
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302	
Channel 3	On	SLIC: 40	(-)	- 2.00(in)	+ 1.72(in)	0801303	
Channel 4	On	SLIC: 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the lower head instrumentation tubes.
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	Partial examination.

Data Analysis

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☒ Yes ☒ No	
	Start	Stop	Start	Stop					
333 - 338	36326	36598	2839	3772	Channel 1	☐	☒	Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 1 A/B Analysis Tape/CD No.: N/A	
					Channel 2	☐	☒		
					Channel 3	☐	☒		
					Channel 4	☐	☒		
					Channel 5	☐	☒		
					Channel 6	☐	☒		
					Channel 7	☐	☒		
					Channel 8	☐	☒		

Analyst / SNT Level / Date: *Vic [Signature] / III / 10 MAR 2005*

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Request for Relief I-ISI-17

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Enclosure 2

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
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Exam Number 2a

Page 1 of 2

Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1

Scan Axis	29.19 - 30.12
Inc. Axis	183.12 - 185.82
Depth In Material	2.29 - 2.94

Channel 1

Module Coordinates

Inc. Axis	3.25 - 5.98
Scan Axis	32.11 - 33.04

Channel 1

Summary

Feature Analysis
Comments

:
:
:
:

No Recordable Indications channels
1, 2, 3, 4, and 5.

Channel 2

Module Coordinates

Inc. Axis	3.25 - 5.98
Scan Axis	26.26 - 27.19

Channel 3

Module Coordinates

Inc. Axis	- 3.85
Scan Axis	31.69 - 32.62

Channel 4

Module Coordinates

Inc. Axis	- 3.85
Scan Axis	26.68 - 27.61

Channel 5

Module Coordinates

Inc. Axis	- 3.85
Scan Axis	29.20 - 30.13

Vir M... LEVEL III 10 MAR 2005



Data Acquisition

Module Parameters:						Calibration Records:		Examination Notes:	
Status	Angle	Direction	Scan Offset	Step Offset		WAT-13	Check for limitations due to the proximity of the lower head instrumentation tubes.		
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the lower head instrumentation tubes.		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	Partial Examination		

Data Analysis

Analyst / SNT Level / Date:

Use ~~Mr~~ / III / 10 MAR 2005

Enclosure 2

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17**

Attachments

E2A-11

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-12

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 3

Page 1 of 2

Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1

Scan Axis	9.27 - 10.20
Inc. Axis	26.61 - 31.47
Depth In Material	2.29 - 2.94

Module Coordinates

Inc. Axis	34.33 - 39.19
Scan Axis	6.35 - 7.28

Channel 1

Feature Analysis
Comments

:	No recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

Channel 1
Summary

Module Coordinates

Inc. Axis	34.33 - 39.19
Scan Axis	12.20 - 13.13

Channel 2

Module Coordinates

Inc. Axis	-
Scan Axis	6.77 - 7.70

Channel 3

Module Coordinates

Inc. Axis	-
Scan Axis	11.78 - 12.71

Channel 4

Module Coordinates

Inc. Axis	-
Scan Axis	9.26 - 10.19

Channel 5

Vis. Marking

LEVEL III

10 MAR 2003

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-17

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W01-02		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 3a			
Project No.: 04-0368		Weld Description: BH Cap-to-BH Spd Ring (9"-18")		Device Configuration: WAT-WALCON-0001					
Mod. Conf.: 07B		Scan Path Drawing: SP-W01-02		Exam Date		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II				10 March 2005		Start End		Start End	
						0814 0830		76 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		3272		3974		Planned	
Scan: Boom Rotate		Upper Limit		4082		3974		Actual	
Increment: Boom Pivot		Increment Interval		54		100		Positional Parameters	
Mode: Automatic Scan		Conversion Counts		100		100		Beam Direction: Cw/Ccw	
Scan Motion: Bi-directional		Conversion Units		Degrees		Degrees		Transducer Size: 1.00	
Correction: Default		Radius In.		88.19		88.19		Code % of Overlap: 10	
Module Parameters: 07B Cal 13		Calibration Records:		Examination Notes:					
Status Angle Direction Scan Offset Step Offset		WAT-13		Check for limitations due to the proximity of the lower head					
Channel 1 On 55 (+) + 1.40(in) - 1.35(in)		0801301		instrumentation tubes.					
Channel 2 On 55 (-) - 1.40(in) - 1.35(in)		0801302							
Channel 3 On SLIC 40 (+) + 2.00(in) + 1.72(in)		0801303							
Channel 4 On SLIC 40 (-) - 2.00(in) + 1.72(in)		0801304		Examination Remarks:					
Channel 5 On 01. (+) + 0.00(in) + 1.72(in)		0801305		Limited examination due to the proximity of the lower head					
Channel 6 Off N/A N/A N/A N/A		N/A		instrumentation tubes.					
Channel 7 Off N/A N/A N/A N/A		N/A							
Channel 8 Off N/A N/A N/A N/A		N/A		Partial Examination					
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No. (s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☒ Yes ☐ No	
	Start	Stop	Start	Stop	Channel 1	☐	☒		
Sec attachment					Channel 2	☐	☒	☐	Further Evaluation Required: ☐ Yes ☒ No
					Channel 3	☐	☒	☐	
					Channel 4	☐	☒	☐	Archive Tape/CD No.: 1 A/B
					Channel 5	☐	☐	☒	
					Channel 6	☐	☐	☒	Analysis Tape/CD No.:
					Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	N/A
Analyst / SNT Level / Date: <i>Vic M... / III / 10 MAR 2005</i>									

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-15

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 3a

Page 1 of 12

Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1

Scan Axis	9.27 - 10.20
Inc. Axis	24.99 - 24.99
Depth In Material	2.29 - 2.94

Module Coordinates

Inc. Axis	39.72 - 39.72
Scan Axis	6.35 - 7.28

Channel 1

Feature Analysis
Comments

:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

Channel 1

Summary

Module Coordinates

Inc. Axis	39.72 - 39.72
Scan Axis	12.20 - 13.13

Channel 2

Module Coordinates

Inc. Axis	-
Scan Axis	6.77 - 7.70

Channel 3

Module Coordinates

Inc. Axis	-
Scan Axis	11.78 - 12.71

Channel 4

Module Coordinates

Inc. Axis	-
Scan Axis	9.26 - 10.19

Channel 5



LEVEL III

10 MAR 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W01-02	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 3b
Project No.: 04-0368	Weld Description: BH Cap-to-BH Sph Ring (3°-185°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W01-02	Exam Date: 10 March 2005	Examination Time: Start 0832 End 0906
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II		Surface Temperature °F: Start 76 End 76	

Data Acquisition

Scan Controller Parameters	Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters
Controller: PaR	Lower Limit	3272	4028	Lower Limit	500	500	Beam Direction: Cw/Ccw
Scan: Boom Rotate	Upper Limit	4082	4082	Upper Limit	18500	18500	Transducer Size: 1.00
Increment: Boom Pivot	Increment Interval	54		DCI	J		Code % of Overlap: 10
Mode: Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans: 16
Scan Motion: Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position: 90.00
Correction: Default	Radius In.	88.19		Radius In.	88.19		Hoist (Pivot Point): 324.05

Module Parameters:		07B	Cal 13			Calibration Records:	Examination Notes:
	Status	Angle	Direction	Scan Offset	Step Offset	WAT-13	Check for limitations due to the proximity of the lower head instrumentation tubes.
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301	
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302	
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303	
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304	
Channel 5	On	DL	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Examination Remarks:
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	Limited examination due to the proximity of the lower head instrumentation tubes.
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Data Analysis

Increment & Scan Positions Actual	Recordable Indications	Analyst Remarks
Scan No.(s)	Yes No N/A	Attachment: ☒ Yes ☐ No
Start Stop	Channel 1 ☐ ☒ ☐	Further Evaluation
See attachment	Channel 2 ☐ ☒ ☐	Required: ☐ Yes ☒ No
	Channel 3 ☐ ☒ ☐	Archive Tape/CD No.: 1 A/B
	Channel 4 ☐ ☒ ☐	Analysis Tape/CD No.: N/A
	Channel 5 ☐ ☐ ☒	
	Channel 6 ☐ ☐ ☒	
	Channel 7 ☐ ☐ ☒	
	Channel 8 ☐ ☐ ☒	

Analyst / SNT Level / Date:

David R. Kleinjan / II / 10 MAR 2005

ISWT FORM No. UT 58 (Rev. 02/02)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
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E2A-17

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-18

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 3b

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Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1	
Scan Axis	9.27 - 10.20
Inc. Axis	24.99 - 24.99
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	40.26 - 40.26
Scan Axis	6.35 - 7.28

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	40.26 - 40.26
Scan Axis	12.20 - 13.13

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	6.77 - 7.70

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	11.78 - 12.71

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	9.26 - 10.19



LEVEL III

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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
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Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD											
Site/Plant: Watts Bar			Weld Identification: RPV-W01-02			Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2			Examination No.: 4		
Project No.: 04-0368			Weld Description: SH Cap-to-BH Sph Ring (113°-366°)			Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07B			Scan Path Drawing: SP-W01-02			Exam Date		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II						10 March 2005		Start 0915		End 1024	
								Start 76		End 76	
Data Acquisition											
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis		Planned	
Controller: PaR		Lower Limit		3272		3272		Lower Limit		18400	
Scan: Boom Rotate		Upper Limit		4082		3867		Upper Limit		36601	
Increment: Boom Pivot		Increment Interval		54				DCI		3	
Mode: Automatic Scan		Conversion Counts		100				Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Degrees				Conversion Units		Degrees	
Correction: Default		Radius In.		88.19				Radius In.		88.19	
Positional Parameters		Beam Direction:		Cw/Ccw				Transducer Size:		1.00	
		Code % of Overlap:		10				Number of Scans:		16	
		Head Rotate Position:		90.00				Hoist (Pivot Point):		324.05	
Module Parameters: 07B		Cal 13						Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset		WAT-13	
Channel 1		On		55		(+)		+ 1.40(in)		- 1.35(in)	
Channel 2		On		55		(-)		- 1.40(in)		- 1.35(in)	
Channel 3		On		SLIC 40		(+)		+ 2.00(in)		+ 1.72(in)	
Channel 4		On		SLIC 40		(-)		- 2.00(in)		+ 1.72(in)	
Channel 5		On		OL		(+)		+ 0.00(in)		+ 1.72(in)	
Channel 6		Off		N/A		N/A		N/A		N/A	
Channel 7		Off		N/A		N/A		N/A		N/A	
Channel 8		Off		N/A		N/A		N/A		N/A	
										Examination Remarks:	
										Limited examination due to the proximity of the lower head instrumentation tubes.	
										Partial Examination	
Data Analysis											
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks			
Scan No.(s)		Increment Position		Scan Position		Yes No N/A		Attachment:			
		Start Stop		Start Stop				☒ Yes ☐ No Further Evaluation Required: ☐ Yes ☒ No			
See Attachment						Channel 1 ☐ ☒ ☐		Archive Tape/CD No.:			
						Channel 2 ☐ ☒ ☐		I A/B			
						Channel 3 ☐ ☒ ☐		Analysis Tape/CD No.:			
						Channel 4 ☐ ☒ ☐		N/A			
						Channel 5 ☐ ☐ ☒					
						Channel 6 ☐ ☐ ☒					
						Channel 7 ☐ ☐ ☒					
						Channel 8 ☐ ☐ ☒					
Analyst / SNT Level / Date: <i>Vic [Signature] / III / 10 MAR 2005</i>											

**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-21

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 4

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Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1

Scan Axis	188.27 - 189.20
Inc. Axis	26.07 - 30.93
Depth In Material	2.29 - 2.94

Channel 1

Module Coordinates

Inc. Axis	33.77 - 38.66
Scan Axis	185.35 - 186.28

Channel 1

Summary

Feature Analysis
Comments

:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

Channel 2

Module Coordinates

Inc. Axis	33.77 - 38.66
Scan Axis	191.20 - 192.13

Channel 3

Module Coordinates

Inc. Axis	-
Scan Axis	185.77 - 186.70

Channel 4

Module Coordinates

Inc. Axis	-
Scan Axis	190.78 - 191.71

Channel 5

Module Coordinates

Inc. Axis	-
Scan Axis	188.26 - 189.19

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LEVEL III

10 MAR 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W01-02	Pro/Rev/Chg/ICN: ISwT-PDL-AUT1/0/0/1&2	Examination No.: 4a
Project No.: 04-0368	Weld Description: BWT Cap-to-Belt Spk Ring (181°-146°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W01-02	Exam Date: 10 March 2005	Examination Time: Start 1025, End 1038
Data Acquisition Operator (s) / SNT Level: David R. Kleijman / II		Surface Temperature °F: Start 76, End 76	

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	3272	3974	Lower Limit	18400	18400	Bearn Direction:	Cw/Ccw
Scan:	Boom Rotate	Upper Limit	4082	3867	Upper Limit	36601	35491	Transducer Size:	1.00
Increment:	Boom Pivot	Increment Interval	54		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	16
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default	Radius In.	88.19		Radius In.	88.19		Hoist (Pivot Point):	324.05
Module Parameters: 07B Cal 13					Calibration Records: WAT-13		Examination Notes:		
Status	Angle	Direction	Scan Offset	Step Offset			Check for limitations due to the proximity of the lower head instrumentation tubes.		
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the lower head instrumentation tubes.		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	Partial Examination		

Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☒ Yes ☐ No
	Start	Stop	Start	Stop				
See Attachment					Channel 1	☐	☒	
					Channel 2	☐	☒	
					Channel 3	☐	☒	
					Channel 4	☐	☒	
					Channel 5	☐	☐	
					Channel 6	☐	☐	
					Channel 7	☐	☐	
					Channel 8	☐	☐	

Analyst / SNT Level / Date:

Use [Signature] / III / 10 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17
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**Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17**

Increment & Scan Positions Actual

E2A-24

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 4a

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Watts Bar Unit 1
Bottom Hd Cap to Spherical Ring
W01-02

Cursor Box 1 of 1	
Scan Axis	188.27 - 189.20
Inc. Axis	24.99 - 26.07
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	39.74 - 40.79
Scan Axis	185.35 - 186.28

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	39.74 - 40.79
Scan Axis	191.20 - 192.13

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	185.77 - 186.70

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	190.78 - 191.71

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	188.26 - 189.19

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LEVEL III

10 MAR 2005

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

ISwT Examination Summary Record

Project No: 368		Site: Watts Bar Nuclear Plant Unit 1		Summary Sheet No.: 300026	
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Circumferential Weld W02-03 Bottom Head to Lower Shell			
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	O T H R E I R Analyst	Resolution Record CNF No. Remarks
AUT	ISwT-PDI-AUT1/0/0 ICN 2	17-26 17-20 17-20 21-26 21-26	AUTO AUTSUC40 AUT55 AUT SUC40T AUT55T	- X X X X	CB/VM CB/VM CB CB CB
					AUTO for thickness measurement only Examination limited due to core barrel support lugs.
Prepared By: <i>Garry Lagler</i>		Date: 13-Mar-05		Page: 1 OF 1 Summary No: 300026	

Set
PAC
5/2/05
ANSE



**IHI SOUTHWEST TECHNOLOGIES
AUTOMATED ULTRASONIC EXAMINATION RECORD**

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 17
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (5°-185°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
Data Acquisition Operator (s) / SNT Level: David R. Kleiman / II		10 March 2005	Start End
		1903 2114	78 78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	500	500	Lower Limit	909	909	Beam Direction:	Dn/Up
Scan:	Room Pivot	Upper Limit	18538	18534	Upper Limit	1965	1965	Transducer Size:	1.00
Increment:	Room Rotate	Increment Interval	58		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	312
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	0.00
Correction:	Default	Radius	88.19		Radius In.	88.19		Hoist (Pivot Point):	N/A
Module Parameters:		07A	Cal 13	Calibration Records:		Examination Notes:			
Status	Angle	Direction	Scan Offset	Step Offset	WAT-13	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.			
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	01	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the core barrel		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.		
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	Partial examination		

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1 - 18	500	1497	1480	1965	Channel 1	☐	☒	☐	Further Evaluation Required:
19 - 69	1550	4446	909	1965	Channel 2	☐	☒	☐	
70 - 122	4502	7518	1480	1965	Channel 3	☐	☒	☐	Archive Tape/CD No.: 3 A/B
123 - 173	7573	10484	909	1965	Channel 4	☐	☒	☐	
174 - 225	10543	13493	1480	1965	Channel 5	☐	☐	☒	Analysis Tape/CD No.: N/A
226 - 276	13536	16450	909	1965	Channel 6	☐	☐	☒	
277 - 312	16508	18534	1480	1965	Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	

Analyst / SNT Level / Date:

Cal M Bauer

III

11 March 2005

ISWT FORM No. UT50 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Enclosure 2

E2A-27

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 17

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Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

12.45 - 13.38
17.72 - 22.94
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

18.37 - 23.57
16.92 - 17.85

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

18.37 - 23.57
7.98 - 8.91

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

16.62 - 21.84
15.90 - 16.83

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

16.62 - 21.84
9.00 - 9.93

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

16.62 - 21.84
12.45 - 13.38

Feature Analysis
Comments

Channel 5
Summary

:
:
:
:
:

No recordable indications chs 1, 2,
3, & 4.

C. M. Bann

III

11 Mar 2005



Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	500	13895	Lower Limit	909	909	Beam Direction:	Dn/Up
Scan:	Boom Pivot	Upper Limit	18538	15242	Upper Limit	1965	1965	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	312
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	0.00
Correction:	Default	Radius	88.19		Radius In.	88.19		Hoist (Pivot Point):	N/A
Module Parameters:					Cal 13		Calibration Records:		Examination Notes:
	Status	Angle	Direction	Scan Offset	Step Offset	WAT-13		Check for limitations due to the proximity of the core stop lugs and	
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301		lower head instrumentation tubes.	
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304		Examination Remarks:	
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305		Limited examination due to the proximity of the core barrel	
Channel 6	Off	N/A	N/A	N/A	N/A	N/A		anti-rotation lugs.	
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A		Partial examination	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No	
	Start	Stop	Start	Stop	Channel 1	☒	☐		
1 - 18	13895	15242	909	1965	Channel 2	☒	☐	Further Evaluation	
					Channel 3	☒	☐	Required:	
					Channel 4	☒	☐	☐ Yes ☒ No	
					Channel 5	☐	☒	Archive Tape/CD No.:	
					Channel 6	☐	☒	3 A/B	
					Channel 7	☐	☒	Analysis Tape/CD No.:	
					Channel 8	☐	☒	N/A	

Analyst / SNT Level / Date:

(SWT FORM No. UT 56 (Rev. 05/02))

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Attachments

Exam Number 17a

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Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

12.45 - 13.38
14.24 - 19.46
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

148.85 -
40.23 - 41.16

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

148.85 -
344.67 - 345.60

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

147.11 - 152.38
36.96 - 37.89

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

147.11 - 152.38
347.94 - 348.87

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

147.11 - 152.38
12.45 - 13.38

Feature Analysis
Comments

Channel 5
Summary

:
:
:
:

No recordable indications chs 1, 2,
3, & 4

C. M. Baum III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES
AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 18
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (184°-366°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
Data Acquisition Operator(s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		10 March 2005	
		Start	End
		2142	2352
		Start	End
		78	78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	18400	18400	Lower Limit	909	909	Beam Direction:	Dn/Up
Scan:	Boom Pivot	Upper Limit	36612	36612	Upper Limit	1965	1965	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	315
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	0.00
Correction:	Default	Radius	88.19		Radius In.	88.19		Hoist (Pivot Point):	N/A
Module Parameters:		Cal 13		Calibration Records:		Examination Notes:			
Status	Angle	Direction	Scan Offset	Step Offset	WAT-13	Check for limitations due to the proximity of the core stop lugs and			
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301	lower head instrumentation tubes.		
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the core barrel		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.		
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No	
	Start	Stop	Start	Stop	Channel 1	Channel 2	Channel 3		
1 - 18	18400	19390	1482	1965	☐	☒	☐	Further Evaluation	
19 - 69	19440	22356	909	1965	☐	☒	☐	Required:	
70 - 122	22403	25419	1482	1965	☐	☒	☐	☐ Yes ☒ No	
123 - 173	25482	28390	909	1965	☐	☐	☒	Archive Tape/CD No.:	
174 - 225	28442	31399	1482	1965	☐	☐	☒	2 A/B	
226 - 276	31447	34351	909	1965	☐	☐	☒	Analysis Tape/CD No.:	
277 - 315	34410	36613	1482	1965	☐	☐	☒	N/A	

Analyst / SNT Level / Date:

Vic Nthul / III / 11 MAR 2005

Attachments

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

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Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

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Exam Number 18

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Watts Bar Unit 1
RPV-W02-03
BH to LWR HD Shell

Cursor Box 1 of 1
Scan Axis 7.10 - 8.03
Inc. Axis 194.72 - 199.94
Depth In Material 2.29 - 2.94

Channel 1
Module Coordinates
Inc. Axis 195.66 - 200.82
Scan Axis 10.02 - 10.95

Channel 1
Feature Analysis Summary
Comments
: No Recordable Indications channels
: 1, 2, 3, 4, and 5
:
:

Channel 2
Module Coordinates
Inc. Axis 195.66 - 200.82
Scan Axis 4.17 - 5.10

Channel 3
Module Coordinates
Inc. Axis 193.90 - 199.15
Scan Axis 9.60 - 10.53

Channel 4
Module Coordinates
Inc. Axis 193.90 - 199.15
Scan Axis 4.59 - 5.52

Channel 5
Module Coordinates
Inc. Axis 193.90 - 199.15
Scan Axis 7.11 - 8.04



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 19a	
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (5°-185°)	Device Configuration: WAT-WALCON-0001		
Mod. Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time	Surface Temperature °F
Data Acquisition Operator(s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		11 March 2005	Start 0324	End 0401
			Start 78	End 78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	500	1611	Lower Limit	32509	32509	Beam Direction:	Dn/Up
Scan:	Hoist	Upper Limit	18538	4445	Upper Limit	34561	34561	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	312
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Inches		Head Rotate Position:	0.00
Correction:	Default	Radius in.	88.19					Hoist (Pivot Point):	N/A

Module Parameters:		07A	Cal 03			Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset		WAT-03	Check for limitations due to the proximity of the core stop lugs and
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301	lower head instrumentation tubes.
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0800302	
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303	
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304	Examination Remarks:
Channel 5	On	UL	(+)	+ 0.00(in)	+ 1.72(in)	0800305	Limited examination due to the proximity of the core barrel
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1 - 50	1611	4449	32509	34561	Channel 1	☐	☒	☐	☐ Yes ☒ No
					Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	3 A/B
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A

Analyst / SNT Level / Date: Lee M. Bauer III 11 March 2005

Enclosure 2
Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17
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Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 19a

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Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
17.72 - 22.94
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1
28.80 - 34.03
336.97 - 338.21

Module Coordinates
Inc. Axis
Scan Axis

Channel 2
28.80 - 34.03
322.17 - 323.41

Module Coordinates
Inc. Axis
Scan Axis

Channel 3
27.06 - 32.27
335.09 - 336.33

Module Coordinates
Inc. Axis
Scan Axis

Channel 4
27.06 - 32.27
324.05 - 325.29

Module Coordinates
Inc. Axis
Scan Axis

Channel 5
27.06 - 32.27
329.57 - 330.81

Feature Analysis
Comments

Channel 5
Summary

:
:
:
:
:

No recordable indications chs 1, 2,
3, & 4.

Lee H. Bauer III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 19b
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (5°-185°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
Data Acquisition Operator(s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		11 March 2005	Start End
			0412 0532
			Start End
			78 78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	500	7578	Lower Limit	32509	32509	Beam Direction:	Dn/Up
Scan:	Hoist	Upper Limit	18538	10830	Upper Limit	34561	34561	Transducer Size:	1.00
Increment:	Hoist Rotate	Increment Interval	58		DCI	4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	312
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	inches		Head Rotate Position:	0.00
Correction:	Default	Radius in.	88.19					Hoist (Pivot Point):	N/A
Module Parameters:		07A Cal 03			Calibration Records:		Examination Notes:		
Status	Angle	Direction	Scan Offset	Step Offset	WAT-03		Check for limitations due to the proximity of the core stop lugs and		
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301	lower head instrumentation tubes.		
Channel 2	On	55	(+)	+ 1.40(in)	+ 1.35(in)	0800302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304	Examination Remarks:		
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0800305	Limited examination due to the proximity of the core barrel		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.		
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
123 - 180	7578	10830	32509	34561	Channel 1	☐	☒	☐	☐ Yes ☒ No
					Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	2 A/B
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A

Analyst / SNT Level / Date:

Alan Schaefer

III

11 March 2005

ISWT FORM No. UT 50 (Rev. 05/02)

Attachments

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Enclosure 2

E2A-35

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 19b

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Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
17.72 - 22.94
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

89.14 - 94.34
336.97 - 338.21

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

89.14 - 94.34
322.17 - 323.41

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

87.40 - 92.62
335.09 - 336.33

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

87.40 - 92.62
324.05 - 325.29

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

87.40 - 92.62
329.57 - 330.81

Feature Analysis
Comments

Channel 5
Summary

: No recordable indications chs 1, 2,
: 3, & 4.
:
:

Cal M. Baum III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 19c
Project No.: 04-036R	Weld Description: BH-to-Lwr Sh (5°-185°)	Device Configuration: WAT-WALCON-0001	
Mod. Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
Data Acquisition Operator (s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		11 March 2005	Start End
			0535 0550
		Surface Temperature °F	
		Start	End
		78	78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	500	13609	Lower Limit	32509	32509	Beam Direction:	Dr/Up
Scan:	Hoist	Upper Limit	18538	16800	Upper Limit	34561	34561	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	312
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Inches		Head Rotate Position:	0.00
Correction:	Default	Radius in.	88.19					Hoist (Pivot Point):	N/A

Module Parameters:		07A	Cal 03	Calibration Records:		Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset	WAT-03	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0800302
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0800305
Channel 6	Off	N/A	N/A	N/A	N/A	Examination Remarks:
Channel 7	Off	N/A	N/A	N/A	N/A	Limited examination due to the proximity of the core barrel anti-rotation lugs.
Channel 8	Off	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No
	Start	Stop	Start	Stop	Channel 1	Channel 2	Channel 3	
127 - 182	13609	16804	32509	34561	☐	☒	☐	Further Evaluation Required:
					Channel 4	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	Archive Tape/CD No.: 2 A/B
					Channel 6	☐	☐	Analysis Tape/CD No.: N/A
					Channel 7	☐	☐	
					Channel 8	☐	☐	

Analyst / SNT Level / Date:

Alan Schaefer

III

11 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Request for Relief 1-ISI-17
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Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 19c

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Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
17.72 - 22.94
4.19 - 5.35

Channel 1

Module Coordinates
Inc. Axis
Scan Axis

149.46 - 154.67
336.97 - 338.21

Channel 2

Module Coordinates
Inc. Axis
Scan Axis

149.46 - 154.67
322.17 - 323.41

Channel 3

Module Coordinates
Inc. Axis
Scan Axis

147.71 - 152.93
335.09 - 336.33

Channel 4

Module Coordinates
Inc. Axis
Scan Axis

147.71 - 152.93
324.05 - 325.29

Channel 5

Module Coordinates
Inc. Axis
Scan Axis

147.71 - 152.93
329.57 - 330.81

Channel 5
Summary

Feature Analysis
Comments

No recordable indications chs 1, 2,
3, & 4

:
:
:
:

C. M. Bann III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

ite/Plant : Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISwT-PDI-AUT1/0/0/1&2	Examination No.: 20a
roject No.: 04-0368	Weld Description: BH-to-Lwr Sh (184°-366°)	Device Configuration: WAT-WALCON-0001	
od.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
ata Acquisition Operator (s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		11 March 2005	Start End
		0559	0617
		78	78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	18400	19446	Lower Limit	32509	32509	Beam Direction:	Dn/Up
Scan:	Hoist	Upper Limit	36612	22754	Upper Limit	34561	34561	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	315
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Inches		Head Rotate Position:	0.00
Correction:	Default	Radius In.	88.19					Hoist (Pivot Point):	N/A
Module Parameters: 07A Cal 03					Calibration Records:		Examination Notes:		
Status	Angle	Direction	Scan Offset	Step Offset	WAT-03		Check for limitations due to the proximity of the core stop lugs and		
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301	lower head instrumentation tubes.		
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0800302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304	Examination Remarks:		
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0800305	Limited examination due to the proximity of the core barrel		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.		
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
19 - 76-	19446	22755	32509	34561	Channel 1	☐	☒	☐	☐ Yes ☒ No
					Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	2 A/B
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A

Analyst / SNT Level / Date:

C. M. Bauer

III

11 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17
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Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 20a

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR HD Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
196.72 - 201.94
4.19 - 5.35

Channel 1

Module Coordinates
Inc. Axis
Scan Axis

207.79 - 213.02
336.97 - 338.21

Channel 2

Module Coordinates
Inc. Axis
Scan Axis

207.79 - 213.02
322.17 - 323.41

Channel 3

Module Coordinates
Inc. Axis
Scan Axis

206.07 - 211.29
335.09 - 336.33

Channel 4

Module Coordinates
Inc. Axis
Scan Axis

206.07 - 211.29
324.05 - 325.29

Channel 5

Module Coordinates
Inc. Axis
Scan Axis

206.07 - 211.29
329.57 - 330.81

Channel 5
Summary

Feature Analysis
Comments

No recordable indications chs 1, 2,
3, & 4.

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C. M. Bann III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES **AUTOMATED ULTRASONIC EXAMINATION RECORD**

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/00/1&2	Examination No.: 20b	
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (184°-366°)	Device Configuration: WAT-WALCON-0001		
Mod.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time	Surface Temperature °F
Data Acquisition Operator(s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A		11 March 2005	Start 0621	End 0636
			Start 78	End 78

Scan Controller Parameters		Increment Axis		Planned	Actual	Scan Axis		Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit		18400	25472	Lower Limit		32509	32509	Beam Direction:	Do/Up
Scan:	Hoist	Upper Limit		36612	28677	Upper Limit		34561	34561	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval		58		DCI		4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts		100		Conversion Counts		100		Number of Scans:	315
Scan Motion:	Bi-directional	Conversion Units		Degrees		Conversion Units		Inches		Head Rotate Position:	0.00
Correction:	Default	Radius In.		88.19						Hoist (Pivot Point):	N/A

Module Parameters: 07A Cal 83						Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset		WAT-03	Check for limitations due to the proximity of the core stop lugs and
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301	lower head instrumentation tubes.
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0800302	
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303	
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304	
Channel 5	On	HL	(+)	+ 0.00(in)	+ 1.72(in)	0800305	Examination Remarks:
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	Limited examination due to the proximity of the core barrel
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
123 - 178	25473	28666	32509	34561	Channel 1	☐	☒	☐	
					Channel 2	☐	☒	☐	
					Channel 3	☐	☒	☐	
					Channel 4	☐	☒	☐	
					Channel 5	☐	☐	☒	
					Channel 6	☐	☐	☒	
					Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	

Analyst / SNT Level / Date: *Cal M Bauer* *III* *11 March 2005*

Enclosure 2

Attachments

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 20b

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR HD Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
196.72 - 201.94
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

268.13 - 273.30
336.97 - 338.21

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

268.13 - 273.30
322.17 - 323.41

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

266.37 - 271.60
335.09 - 336.33

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

266.37 - 271.60
324.05 - 325.29

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

266.37 - 271.60
329.57 - 330.81

Feature Analysis
Comments

Channel 5
Summary

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No recordable indications chs 1, 2,
3, & 4.

Cal M. Bauer III 11 Mar 2005



**IHI SOUTHWEST TECHNOLOGIES
AUTOMATED ULTRASONIC EXAMINATION RECORD**

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Proj/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 20c
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (184"-366")	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07A	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
Data Acquisition Operator (s) / SNT Level: Sergey Vinogradov / N/A Alan Scharfer / N/A		11 March 2005	Start End
			Start End
			78 78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	18400	31385	Lower Limit	32509	32509	Beam Direction:	Dn/Up
Scan:	Hoist	Upper Limit	36612	34590	Upper Limit	34561	34561	Transducer Size:	1.00
Increment:	Boom Rotate	Increment Interval	58		DCI	4		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	315
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Inches		Head Rotate Position:	0.00
Correction:	Default	Radius In.	88.19					Hoist (Pivot Point):	N/A

Module Parameters:		07A	Cal 03	Calibration Records:		Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset	WAT-03	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0800301
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0800302
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0800303
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0800304
Channel 5	On	01	(+)	+ 0.00(in)	+ 1.72(in)	0800305
Channel 6	Off	N/A	N/A	N/A	N/A	Examination Remarks:
Channel 7	Off	N/A	N/A	N/A	N/A	Limited examination due to the proximity of the core barrel anti-rotation lugs.
Channel 8	Off	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No	
	Start	Stop	Start	Stop					
225 - 280	31388	34583	32509	34561	Channel 1	☐	☒	☐	Further Evaluation
					Channel 2	☐	☒	☐	
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	2 A/B
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A

Analyst / SNT Level / Date:

Alan Scharfer

III

11 March 2005

ISWT FORM No. UT 56 (Rev. 05/03)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17
Attachments

Enclosure 2

E2A-43

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 20c

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR HD Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

329.57 - 330.81
196.72 - 201.94
4.19 - 5.35

Channel 1

Module Coordinates
Inc. Axis
Scan Axis

327.29 - 332.49
336.97 - 338.21

Channel 2

Module Coordinates
Inc. Axis
Scan Axis

327.29 - 332.49
322.17 - 323.41

Channel 3

Module Coordinates
Inc. Axis
Scan Axis

325.52 - 330.76
335.09 - 336.33

Channel 4

Module Coordinates
Inc. Axis
Scan Axis

325.52 - 330.76
324.05 - 325.29

Channel 5

Module Coordinates
Inc. Axis
Scan Axis

325.52 - 330.76
329.57 - 330.81

Channel 5
Summary

Feature Analysis
Comments

No recordable indications chs 1, 2,
3, & 4.

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C. M. Bauer III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISwT-PDI-AUT1/0/0/1&2	Examination No.: 21
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (5°-60°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date: 11 March 2005	Examination Time: Start 0019, End 0050
Data Acquisition Operator(s) / SNT Level: Sergey Vinogradov / N/A Alan Schaefer / N/A			Surface Temperature °F: Start 78, End 78

Scan Controller Parameters	Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters
Controller: PaR	Lower Limit:	33395	33395	Lower Limit:	500	500	Beam Direction: Cw/Ccw
Scan: Boom Rotate	Upper Limit:	34925	34926	Upper Limit:	6002	6002	Transducer Size: 1.00
Increment: Hoist	Increment Interval:	90		DCI:	3		Code % of Overlap: 10
Mode: Automatic Scan	Conversion Counts:	100		Conversion Counts:	100		Number of Scans: 18
Scan Motion: Bi-directional	Conversion Units:	Inches		Conversion Units:	Degrees		Head Rotate Position: 90.00
Correction: Default				Radius In:	88.19		Hoist (Pivot Point): N/A

Module Parameters:	07B	Cal 33	Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset
Channel 1	On	55	(+)	+ 1.40(in) - 1.35(in)
Channel 2	On	55	(-)	- 1.40(in) - 1.35(in)
Channel 3	On	SLIC 40	(+)	+ 2.00(in) + 1.72(in)
Channel 4	On	SLIC 40	(-)	- 2.00(in) + 1.72(in)
Channel 5	On	OL	(+)	+ 0.00(in) + 1.72(in)
Channel 6	Off	N/A	N/A	N/A
Channel 7	Off	N/A	N/A	N/A
Channel 8	Off	N/A	N/A	N/A

Increment & Scan Positions Actual	Recordable Indications	Analyst Remarks
Scan No.(s)	Yes No N/A	
Start Stop	Channel 1 ☐ ☒ ☐	Attachment: ☐ Yes ☒ No
1-13	Channel 2 ☐ ☒ ☐	Further Evaluation
14-18	Channel 3 ☐ ☒ ☐	Required: ☐ Yes ☒ No
	Channel 4 ☐ ☒ ☐	Archive Tape/CD No.:
	Channel 5 ☐ ☐ ☒	3 A/B
	Channel 6 ☐ ☐ ☒	Analysis Tape/CT No.:
	Channel 7 ☐ ☐ ☒	
	Channel 8 ☐ ☐ ☒	N/A

Analyst / SNT Level / Date:

Cal M Bauer III 11 March 2005

ISWT FORM No. 07-58 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief I-ISI-17

Attachments

Enclosure 2

E2A-45

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 21

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

8.36 - 9.29
342.87 - 350.97
6.62 - 7.78

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

343.85 -
2.09 - 3.02

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

343.85 -
14.63 - 15.56

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

341.19 - 349.26
3.80 - 4.73

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

341.19 - 349.26
12.92 - 13.85

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

341.19 - 349.26
8.36 - 9.29

Feature Analysis
Comments

Channel 5
Summary

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No recordable indications chs 1, 2,
3, & 4.

C. M. Bauer III *11 Mar 2005*
CMR



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 22
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (59°-120°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date: 11 March 2005	Examination Time: 0106 - 0116
Data Acquisition Operator(s) / SNT Level: Alan Schaefer / N/A		Surface Temperature °F: 78 - 78	

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	33395	33395	Lower Limit	5900	5900	Beam Direction:	Cw/Ccw
Scan:	Boom Rotate	Upper Limit	34925	34927	Upper Limit	12002	12002	Transducer Size:	1.00
Increment:	Hoist	Increment Interval	90		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	18
Scan Motion:	BI-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default				Radius In.	88.19		Hoist (Pivot Point):	N/A

Module Parameters:		07B		Cat 13		Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset		WAT-13	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0803301	
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0803302	
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0803303	
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0803304	Examination Remarks:
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0803305	Limited examination due to the proximity of the core barrel
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 3 A/B Analysis Tape/CD No.: N/A
	Start	Stop	Start	Stop				
1 - 13	33395	34478	7469	10832	Channel 1 ☐	☒	☐	
14 - 18	34568	34927	5900	12002	Channel 2 ☐	☒	☐	
					Channel 3 ☐	☒	☐	
					Channel 4 ☐	☒	☐	
					Channel 5 ☐	☐	☒	
					Channel 6 ☐	☐	☒	
					Channel 7 ☐	☐	☒	
					Channel 8 ☐	☐	☒	

Analyst / SNT Level / Date: *Alan Schaefer III* 11 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Enclosure 2

E2A-47

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 22

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

62.36 - 63.29
342.87 - 350.97
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

343.87 -
57.89 - 58.82

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

343.87 -
66.83 - 67.76

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

341.18 - 349.27
58.91 - 59.84

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

341.18 - 349.27
65.81 - 66.74

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

341.18 - 349.27
62.36 - 63.29

Feature Analysis
Comments

Channel 5
Summary

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No recordable indications chs 1, 2,
3, & 4.

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C. M. Gann III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

ite/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 23
roject No.: 04-0368	Weld Description: BH-to-Lwr Sh (119°-180°	Device Configuration: WAT-WALCON-0001	
od.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
ata Acquisition Operator (s) / SNT Level: Alan Schaefer / N/A		11 March 2005	Start End
			0125 0134 78 78

Scan Controller Parameters	Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters
ontroller: PaR	Lower Limit	33395	33395	Lower Limit	11900	11900	Beam Direction: Cw/Ccw
can: Boom Rotate	Upper Limit	34925	34926	Upper Limit	18002	18002	Transducer Size: 1.00
crement: Hoist	Increment Interval	90		DCI	3		Code % of Overlap: 10
ode: Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans: 18
can Motion: Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position: 90.00
orrection: Default				Radius In.	88.19		Hoist (Pivot Point): N/A

Module Parameters:	07B	Cal 13	Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset
Channel 1	On	55	(+)	+ 1.40(in) - 1.35(in)
Channel 2	On	55	(-)	- 1.40(in) - 1.35(in)
Channel 3	On	SLK: 40	(+)	+ 2.00(in) + 1.72(in)
Channel 4	On	SLK: 40	(-)	- 2.00(in) + 1.72(in)
Channel 5	On	OL	(+)	+ 0.00(in) + 1.72(in)
Channel 6	Off	N/A	N/A	N/A
Channel 7	Off	N/A	N/A	N/A
Channel 8	Off	N/A	N/A	N/A

Increment & Scan Positions Actual	Recordable Indications	Analyst Remarks
Scan No.(s)	Increment Position	Scan Position
	Start	Stop
1 - 13	33395	34474
14 - 18	34565	34926
	Start	Stop
	33486	16835
	11900	18002
	Channel 1	Channel 2
	Channel 3	Channel 4
	Channel 5	Channel 6
	Channel 7	Channel 8

Analyst / SNT Level / Date: Alan Schaefer III 11 March 2005

SWT FORM No. UT50 (Rev. 03-02)

Enclosure 2
Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17
Attachments

E2A-49

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 23

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

122.36 - 123.29
342.87 - 350.97
4.19 - 5.35

Channel 1
Module Coordinates
Inc. Axis
Scan Axis

343.86 -
117.89 - 118.82

Channel 2
Module Coordinates
Inc. Axis
Scan Axis

343.86 -
126.83 - 127.76

Channel 3
Module Coordinates
Inc. Axis
Scan Axis

341.19 - 349.26
118.91 - 119.84

Channel 4
Module Coordinates
Inc. Axis
Scan Axis

341.19 - 349.26
125.81 - 126.74

Channel 5
Module Coordinates
Inc. Axis
Scan Axis

341.19 - 349.26
122.36 - 123.29

Channel 5
Summary
Feature Analysis
Comments

No recordable indications chs 1, 2,
3, & 4.

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Cal M. Bann III 11 Mar 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 24
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (179°-240°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date: 11 March 2005	Examination Time: Start 0140, End 0151
Data Acquisition Operator(s) / SNT Level: Alan Schaefer / N/A			Surface Temperature °F: Start 78, End 78

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	33395	33395	Lower Limit	17900	17900	Beam Direction:	Cw/Ccw
Scan:	Room Rotate	Upper Limit	34925	34926	Upper Limit	24002	24002	Transducer Size:	1.00
Increment:	Hoist	Increment Interval	90		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	18
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default				Radius In.	88.19		Hoist (Pivot Point):	N/A

Module Parameters:		07B	Cal 13	Calibration Records:		Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset	WAT-13	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0803301
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0803302
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0803303
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0803304
Channel 5	On	UL	(+)	+ 0.00(in)	+ 1.72(in)	0803305
Channel 6	Off	N/A	N/A	N/A	N/A	N/A
Channel 7	Off	N/A	N/A	N/A	N/A	N/A
Channel 8	Off	N/A	N/A	N/A	N/A	N/A

Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 3A & B Analysis Tape/CD No.: N/A
	Start	Stop	Start	Stop	Channel 1	Channel 2	Channel 3	
1-13	33395	34474	19472	22829	☐	☒	☐	
14-18	34565	34926	17900	24002	☐	☒	☐	
					Channel 4	☐	☒	
					Channel 5	☐	☐	
					Channel 6	☐	☐	
					Channel 7	☐	☐	
					Channel 8	☐	☐	

Analyst / SNT Level / Date:

C. M. Bann

III

11 March 2005

ISWT FORM No. UT 59 (Rev. 05/02)

Attachments

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Enclosure 2

B2A-51

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 24

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

182.36 - 183.29
342.87 - 350.97
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

343.87 -
177.89 - 178.82

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

343.87 -
186.83 - 187.76

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

341.18 - 349.26
178.91 - 179.84

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

341.18 - 349.26
185.81 - 186.74

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

341.18 - 349.26
182.36 - 183.29

Feature Analysis
Comments

Channel 5
Summary

No recordable indications chs 1, 2,
3, & 4

C. M. Baume III 11 March 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

ite/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 25
roject No.: 04-0368	Weld Description: BH-to-Lwr Sh (239°-300°)	Device Configuration: WAT-WALCON-0001	
od.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date	Examination Time
ata Acquisition Operator (s) / SNT Level: Alan Schaefer / N/A		11 March 2005	Start End
			0157 0205
			Surface Temperature °F
			Start End
			78 78

Scan Controller Parameters	Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters
ontroller: PaR	Lower Limit	33395	33395	Lower Limit	23900	23900	Beam Direction: Cw/Ccw
ican: Boom Rotate	Upper Limit	34925	34926	Upper Limit	30002	30002	Transducer Size: 1.00
crement: Hoist	Increment Interval	90		OCI	3		Code % of Overlap: 10
ode: Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans: 18
ican Motion: Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position: 90.00
Correction: Default				88.19	88.19		Hoist (Pivot Point): N/A

Module Parameters:	07B	Cal 13	Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset
Channel 1	On	55	(+)	+ 1.40(in) - 1.35(in)
Channel 2	On	55	(-)	- 1.40(in) - 1.35(in)
Channel 3	On	SLIC 40	(+)	+ 2.00(in) + 1.72(in)
Channel 4	On	SLIC 40	(-)	- 2.00(in) + 1.72(in)
Channel 5	On	Of.	(+)	+ 0.00(in) + 1.72(in)
Channel 6	Off	N/A	N/A	N/A
Channel 7	Off	N/A	N/A	N/A
Channel 8	Off	N/A	N/A	N/A
			WAT-13	Check for limitations due to the proximity of the core stop lugs and
			0803301	lower head instrumentation tubes.
			0803302	
			0803303	
			0803304	Examination Remarks:
			0803305	Limited examination due to the proximity of the core barrel
			N/A	anti-rotation lugs.
			N/A	
			N/A	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1 - 13	33395	34474	25277	28634	Channel 1	☐	☒	☐	☐ Yes ☒ No
14 - 18	34565	34926	23900	30002	Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	3 A/B
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A

Analyst / SNT Level / Date:

Alan Schaefer

III

11 March 2005

Attachments

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Enclosure 2

B2A-53

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 25

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

242.36 - 243.29
342.87 - 350.97
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

343.88 -
237.89 - 238.82

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

343.88 -
246.83 - 247.76

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

341.17 - 349.28
238.91 - 239.84

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

341.17 - 349.28
245.81 - 246.74

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

341.17 - 349.28
242.36 - 243.29

Feature Analysis
Comments

Channel 5
Summary

No recordable indications chs 1, 2,
3, & 4.

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C. M. Bann III 11 Mar. 2005



IHI SOUTHWEST TECHNOLOGIES
AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 26
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (299°-366°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date: 11 March 2005	Examination Time: Start 0211, End 0220
Data Acquisition Operator (s) / SNT Level: Alan Schaefer / N/A		Surface Temperature °F: Start 78, End 78	

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	33395	33395	Lower Limit	30900	30900	Beam Direction:	Cw/Ccw
Scan:	Down Rotate	Upper Limit	34925	34926	Upper Limit	36600	36600	Transducer Size:	1.00
Increment:	Hoist	Increment Interval	90		DCL	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	18
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default				Radius In.	88.19		Hoist (Pivot Point):	N/A
Module Parameters: 07B Cal 13					Calibration Records: WAT-13		Examination Notes: Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.		
Status	Angle	Direction	Scan Offset	Step Offset					
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)				
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)				
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)				
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)				
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)				
Channel 6	Off	N/A	N/A	N/A	N/A	Examination Remarks: Limited examination due to the proximity of the core barrel anti-rotation lugs.			
Channel 7	Off	N/A	N/A	N/A	N/A				
Channel 8	Off	N/A	N/A	N/A	N/A				

Scan No.(s)	Increment Position		Scan Position		Recordable Indications			Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 3 A/B Analysis Tape/CD No.: N/A	Analyst Remarks
	Start	Stop	Start	Stop	Yes	No	N/A		
1-13	33395	34474	31266	34632	Channel 1	☐	☒	☐	
14-18	34565	34926	30900	36600	Channel 2	☐	☒	☐	
					Channel 3	☐	☒	☐	
					Channel 4	☐	☒	☐	
					Channel 5	☐	☐	☒	
					Channel 6	☐	☐	☒	
					Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	

Analyst / SNT Level / Date:

Alan M. Bauer

III 11 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservise Inspection Program
Request for Relief 1-ISI-17
Attachments

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 26

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

312.36 - 313.29
341.97 - 350.07
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

342.98 -
307.89 - 308.82

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

342.98 -
316.83 - 317.76

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

340.28 - 348.38
308.91 - 309.84

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

340.28 - 348.38
315.81 - 316.74

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

340.28 - 348.38
312.36 - 313.29

Feature Analysis
Comments

Channel 5
Summary

No recordable indications chs 1, 2,
3, & 4.

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Cal M. Bance III 11 March 2005



IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD

Site/Plant: Watts Bar	Weld Identification: RPV-W02-03	Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2	Examination No.: 26a
Project No.: 04-0368	Weld Description: BH-to-Lwr Sh (299°-366°)	Device Configuration: WAT-WALCON-0001	
Mod.Conf.: 07B	Scan Path Drawing: SP-W02-03	Exam Date: 11 March 2005	Examination Time: Start 0236 End 0238
Data Acquisition Operator(s) / SNT Level: Alan Schaefer / N/A		Surface Temperature °F: Start 78 End 78	

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	33395	33395	Lower Limit	29900	29900	Beam Direction:	Cw/Ccw
Scan:	Boom Rotate	Upper Limit	34925	34926	Upper Limit	36600	36602	Transducer Size:	1.00
Increment:	Hoist	Increment Interval	90		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	18
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default				Radius In.	88.19		Hoist (Pivot Point):	N/A

Module Parameters: 07B Cal 13						Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Step Offset		WAT-13	Check for limitations due to the proximity of the core stop lugs and lower head instrumentation tubes.
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0803301	
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0803302	
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0803303	
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0803304	Examination Remarks:
Channel 5	On	01	(+)	+ 0.00(in)	+ 1.72(in)	0803305	Limited examination due to the proximity of the core barrel
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	anti-rotation lugs.
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No	
	Start	Stop	Start	Stop					
1-5	34566	34927	29900	36600	Channel 1	☐	☒	☐	Further Evaluation Required:
					Channel 2	☐	☒	☐	☐ Yes ☒ No
					Channel 3	☐	☒	☐	Archive Tape/CD No.:
					Channel 4	☐	☒	☐	3 A/B
					Channel 5	☐	☐	☒	Analysis Tape/CD No.:
					Channel 6	☐	☐	☒	N/A
					Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	

Analyst / SNT Level / Date:

Alan M. Bauer

III

11 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17
Attachments

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-17

Attachments

Exam Number 26a

Page 1 of 2

Watts Bar Unit 1
RPV-W02-03
BH to LWR Shell

Cursor Box 1 of 1
Scan Axis
Inc. Axis
Depth In Material

302.36 - 303.29
335.67 - 339.27
4.19 - 5.35

Module Coordinates
Inc. Axis
Scan Axis

Channel 1

348.34 -
297.89 - 298.82

Module Coordinates
Inc. Axis
Scan Axis

Channel 2

348.34 -
306.83 - 307.76

Module Coordinates
Inc. Axis
Scan Axis

Channel 3

345.66 - 349.27
298.91 - 299.84

Module Coordinates
Inc. Axis
Scan Axis

Channel 4

345.66 - 349.27
305.81 - 306.74

Module Coordinates
Inc. Axis
Scan Axis

Channel 5

345.66 - 349.27
302.36 - 303.29

Feature Analysis
Comments

Channel 5
Summary

:
:
:
:

No recordable indications chs 1, 2,
3, & 4.

C. M. Bawne III 11 March 2005

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-18

Summary:

Due to design configuration of the reactor vessel, volumetric examination of the meridional welds during the WBN Unit 1 Cycle 6 Refueling Outage resulted in less than essentially 100 percent of ASME code coverage being achieved. The design configuration of the core barrel stabilizing lugs and location of the lower head penetrations interfere with performance of an ultrasonic scan of the meridional welds, thus preventing essentially 100 percent examination of the required full volume. Volumetric examination of this component is required in accordance with ASME Section XI Table IWB-2500-1, Examination Category B-A, Item Number B1.22. The full volume weld examination requirement is illustrated by ASME Section XI Figure IWB-2500-3.

An ultrasonic examination was performed on accessible areas to the maximum extent practical, given the physical limitations of the meridional welds. The design configuration limits the best effort ultrasonic examination to approximately 67 percent to 85 percent of the required volume of each of the meridional welds. The volumetric examinations resulted in no recordable indications for Welds W2A, W2B, W2C, W2D, W2E, and W2F. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety.

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested from the extent of examination requirement due to physical restrictions. Relief is requested from these examinations because the code requirement is impractical to implement.

System/Component(s) for Which Relief is Requested:

- Code Class 1 Reactor Pressure Vessel Meridional Welds.
- Weld Identifiers: W2A, W2B, W2C, W2D, W2E, and W2F.

Reference ISI Drawing ISI-0427-C-01 and ISI-0427-C-06.

Code Requirement:

WBN's Code of Record is ASME Section XI, 1989 Edition. ASME Section XI, 1989 Edition, Table IWB-2500-1, Examination Category B-A, Item Numbers B1.22, Reactor Vessel Meridional Welds.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-18

Code Requirements from Which Relief is Requested:

Relief is requested from the volumetric examination coverage of essentially 100 percent of the reactor vessel meridional welds.

Basis for Relief:

The design configuration of the reactor pressure vessel precludes a complete volumetric examination of the required volume for the Meridional Welds W2A, W2B, W2C, W2D, W2E, and W2F. The limitation is due to the bottom head penetrations and core barrel stabilizing lugs. The configuration limits the volumetric examination of the required volume as follows for each weld: W2A - 79 percent; W2B - 84 percent; W2C - 85 percent; W2D - 85 percent; W2E - 69 percent; and , W2F - 67 percent. Refer to Enclosure 5, *Examination Area Coverage Report for Watts Bar Nuclear Plant*, for vendor discussion of examination coverage calculation.

Alternative Examinations:

In lieu of the code required 100 percent volumetric examination, an ultrasonic examination was performed on accessible areas to the maximum extent practical given the physical limitations associated with the meridional welds. Refer to Enclosure 3 Attachments, for the examination data reports.

Justification for the Granting of Relief:

The design configuration of the reactor vessel core barrel stabilizing lugs and bottom head penetrations precludes ultrasonic examination of essentially 100 percent of the meridional welds. The meridional weld examinations were performed using automated ultrasonic (AUT) scanning equipment and AUT data recording/analysis systems. The target scope of the examinations included 100 percent of the accessible weld. The examination coverage requirements for the meridional welds are discussed in Enclosure 5, *Examination Area Coverage Report for WBN*. Examination of the meridional welds is obstructed by the core barrel stabilizing lugs and lower head penetrations. The design configuration allows for ultrasonic examination of approximately 67 percent to 85 percent of the required volume.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-18

The ASME Section XI code requirements for reflectors oriented parallel and transverse to the weld stipulate that the angle beam search units shall be aimed, with the search unit manipulated, so that the ultrasonic beams pass throughout the entire volume of weld metal. The required examination volume E-F-G-H is depicted on ASME Section XI Figure IWB-2500-3. The core barrel stabilizing lugs and bottom head penetrations limit two-direction parallel and transverse coverage of the meridional welds. These components restrict the ultrasonic search unit scan surface.

Other examination techniques were also determined to be impractical for this configuration. Due to the design configuration of the lower head penetrations, ultrasonic examination from the outside surface of the vessel provides less coverage than ultrasonic examination from the inside surface and the outside surface has limited access. Use of AUT equipment from the inside surface reduces personnel radiation exposure.

The meridional welds received limited two-direction parallel and transverse coverage with the sound beam directed toward the weld. The results of these examinations recorded no reportable indications in Welds W2A, W2B, W2C, W2D, W2E, and W2F. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the meridional welds.

Conformance with the referenced code requirement is impractical, therefore, this request for relief is submitted pursuant to 10CFR 50.55a(g)(5)(iii).

Implementation Schedule:

This request for relief is applicable to WBN's first inspection interval that began May 27, 1996 and ends December 26, 2006.

ENCLOSURE 3

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INTERVAL INSERVICE INSPECTION INTERVAL
REQUEST FOR RELIEF 1-ISI-18

ATTACHMENTS

- | | | |
|----|--|-----------|
| 1. | Examinations Data Reports for Weld W2A | Pg E3A-2 |
| 2. | Examinations Data Reports for Weld W2B | Pg E3A-7 |
| 3. | Examinations Data Reports for Weld W2C | Pg E3A-12 |
| 4. | Examinations Data Reports for Weld W2D | Pg E3A-17 |
| 5. | Examinations Data Reports for Weld W2E | Pg E3A-22 |
| 6 | Examinations Data Reports for Weld W2F | Pg E3A-27 |

ISwT Examination Summary Record

Project No: 368		Site: Watts Bar Nuclear Plant Unit 1.		Summary Sheet No.: 300033	
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Lower Head Meridional Weld W2A Lower Head at 0-degrees			
				O T N H R E	
NDE Method	Procedure Rev./Chg./CN	Exam Number(s)	Exam Angle	J	R E Analyst Resolution Record CNF No. Remarks
AUT	ISWT-PDI-AUT1/D/O ICN 2	5,6 6 6 5 5	AUTO AUTSLIC40 AUT55 AUT SLK40T AUT55T	- X X X X	- - - - - VM VM VM VM
				AUTO for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.	
Prepared By: <i>Handwritten Signature</i>		Date: 12-Mar-05		Page: 1 OF 1 Summary No: 300033	

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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief I-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD													
Site/Plant: Watts Bar			Weld Identification: RPV-W02-A			Frs/Rev/Chp/ICN: ISWT-PDI-AIIT1/0/0/1&2			Examination No.: 5				
Project No.: 04-0368			Weld Description: Lwr Hd Meridional @ 0°			Device Configuration: WAT-WALCON-0001							
Mod.Conf.: 07A			Scan Path Drawing: SPMcrd			Exam Date		Examination Time		Surface Temperature °F			
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III						10 March 2005		Start 1444		End 1458			
								Start 78		End 78			
DATE: 10/03/2005													
Scan Controller Parameters			Increment Axis		Planned		Actual		Scan Axis		Planned		
Controller: PaR			Lower Limit		35496		35496		Lower Limit		1160		
Scan: Boom Pivot			Upper Limit		36522		36522		Upper Limit		3662		
Increment: Boom Rotate			Increment Interval		54		DCI		3		Positional Parameters		
Mode: Automatic Scan			Conversion Counts		100		Conversion Counts		100		Beam Direction: Dn/Up		
Scan Motion: Bi-directional			Conversion Units		Degrees		Conversion Units		Degrees		Transducer Size: 1.00		
Correction: Default			Radius In.		88.19		Radius In.		88.19		Code % of Overlap: 10		
Module Parameters: 07A			Cal 13				Calibration Records: WAT-13		Examination Notes:				
Status		Angle	Direction	Scan Offset	Step Offset	WAT-13			Check for limitations due to the proximity of the lower head				
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301			Instrumentation tubes.				
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302							
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303							
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304			Examination Remarks:				
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305			Limited examination due to the proximity of the core barrel				
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			anti-rotation lugs and the lower head instrumentation tubes.				
Channel 7	Off	N/A	N/A	N/A	N/A	N/A							
Channel 8	Off	N/A	N/A	N/A	N/A	N/A							
DATE: 10/03/2005													
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks					
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:					
	Start	Stop	Start	Stop	Channel 1	☐	☒	☐	☐ Yes ☒ No				
1 - 20	35492	36530	1478	3662	Channel 2	☐	☒	☐	Further Evaluation				
					Channel 3	☐	☒	☐	Required:				
					Channel 4	☐	☒	☐	☐ Yes ☒ No				
					Channel 5	☐	☐	☒	Archive Tape/CD No.:				
					Channel 6	☐	☐	☒	1A & B				
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:				
					Channel 8	☐	☐	☒	N/A				
Analyst / SNT Level / Date: <i>Wic [Signature]</i> / III / 10 MAR 2005													

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number 5

Page 1 of 2

Watts Bar Unit 1
 RPV-W02-A
 LWR Hd Meridional @ 0 Deg

Cursor Box 1 of 1	
Scan Axis	15.64 - 16.57
Inc. Axis	359.48 - 4.34
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	0.40 - 339.62
Scan Axis	18.56 - 19.49

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	0.40 - 339.62
Scan Axis	12.71 - 13.64

	Channel 3
Module Coordinates	
Inc. Axis	358.25 - 3.09
Scan Axis	18.14 - 19.07

	Channel 4
Module Coordinates	
Inc. Axis	358.25 - 3.09
Scan Axis	13.13 - 14.06

	Channel 5
Module Coordinates	
Inc. Axis	358.25 - 3.09
Scan Axis	15.65 - 16.58



LEVEL III

10 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W02-A		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 6			
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 0°		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07B		Scan Path Drawing: SPMerid		Exam Date: 10-Mar-05		Examination Time: Start 1818, End 1830		Surface Temperature °F: Start 78, End 78	
Data Acquisition Operator (s) / SNT Level: D. Kistjan/TI									
Scan Controller Parameters Controller: PaR Scan: Boom Rotate Increment: Boom Pivot Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default		Increment Axis Lower Limit: 1160 Upper Limit: 3698 Increment Interval: 54 Conversion Counts: 100 Conversion Units: Degrees Radius In: 88.19		Planned 1160 3698 54 100 Degrees 88.19		Actual 1540 3699 DCI 3 100 Degrees 88.19		Positional Parameters Beam Direction: Cw/Ccw Transducer Size: 1.00 Code % of Overlap: 10 Number of Scans: 48 Head Rotate Position: 90.00 Hoist (Pivot Point): 324.05	
Module Parameters: 07B Cal 13				Calibration Records: WAT-13		Examination Notes: Check for limitations due to the proximity of the lower head instrumentation tubes.			
	Status	Angle	Direction	Scan Offset	Stop Offset				
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304			
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment: Further Evaluation Required: Archive Tape/CD No.: Analysis Tape/CD No.: N/A	
	Start	Stop	Start	Stop					
8-18	1160	3320	34986	37014	Channel 1	☐	☒	☐	
41	1538				Channel 2	☐	☒	☐	
emb 1 Mar 2005					Channel 3	☐	☒	☐	
					Channel 4	☐	☒	☐	
					Channel 5	☐	☐	☒	
					Channel 6	☐	☐	☒	
					Channel 7	☐	☐	☒	
					Channel 8	☐	☐	☒	
Analyst / SNT Level / Date: Vic [Signature] / III / 11 MAR 2005									

ISWT FORM No. UT-50 (Rev. 05/02)

Enclosure 3

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

Exam Number 6

Page 1 of 1 

Watts Bar Unit 1
RPV-W02-A
LWR HD Meridional @ 0 Deg

Cursor Box 1 of 1	
Scan Axis	354.13 - 355.06
Inc. Axis	14.67 - 19.53
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	26.20 - 31.01
Scan Axis	351.21 - 352.14

Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	26.20 - 31.01
Scan Axis	357.06 - 357.99

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	351.63 - 352.56

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	356.64 - 357.57

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	354.12 - 355.05



LEVEL III

11 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief I-ISI-18

Attachments

ISWT Examination Summary Record											
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300008			
Examination Area:		Reactor Pressure Vessel									
Line/Assembly:		Lower Head Meridional Weld W2B									
Identification:		Lower Head at 60-degrees									
NOE	Procedure	Exam	Exam				Resolution	CNP			
Method	Rev/Chg/ICN	Number(s)	Angle	I	R	Analyst	Record	No.	Remarks		
AUT	ISWT-PDI-AUT1/00 ICN 2	7,8	AUT0	-	-				AUT0 for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.		
		8	AUTSLIC40	X	-	VM					
		8	AUT55	X	-	VM					
		7	AUT SLIC40T	X	-	VM					
		7	AUT55T	X	-	VM					

Prepared By: <i>Erudy Lagden</i>	Date: 12-Mar-05	Page: 1 OF 1	Summary No.: 300008
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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD											
Site/Plant: Watts Bar		Weld Identification: RPV-W02-B		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/00/1&2		Examination No.: 7					
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 60°		Device Configuration: WAT-WALCON-0001							
Mod.Conf.: 07A		Scan Path Drawing: SPMerid		Exam Date: 10 March 2005		Examination Time: Start 1617, End 1631		Surface Temperature °F: Start 78, End 78			
Data Acquisition Operator (s) / SNT Level: Carlos M. Herrera / III											
Scan Controller Parameters Controller: PaR Scan: Boom Pivot Increment: Boom Rotate Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default		Increment Axis Lower Limit: 5496 Upper Limit: 6522 Increment Interval: 54 Conversion Counts: 100 Conversion Units: Degrees Radius in: 88.19		Planned 5496 6522 54 100 Degrees 88.19		Actual 5496 6522 54 100 Degrees 88.19		Scan Axis Lower Limit: 1160 Upper Limit: 3662 DCI: 3 Conversion Counts: 100 Conversion Units: Degrees Radius in: 88.19		Positional Parameters Beam Direction: Dn/Up Transducer Size: 1.00 Code % of Overlap: 10 Number of Scans: 20 Head Rotate Position: 0.00 Hoist (Pivot Point): 324.05	
Module Parameters: 07A, Csl 13				Calibration Records: WAT-13		Examination Notes: Check for limitations due to the proximity of the lower head instrumentation tubes.					
Status		Angle	Direction	Scan Offset	Step Offset						
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301					
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302					
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303					
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304					
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305					
Channel 6	Off	N/A	N/A	N/A	N/A	N/A					
Channel 7	Off	N/A	N/A	N/A	N/A	N/A					
Channel 8	Off	N/A	N/A	N/A	N/A	N/A					
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks				
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:			
	Start	Stop	Start	Stop				☐ Yes ☒ No			
1 - 16	5498	6306	1478	3662	Channel 1	☐	☒	☐	Further Evaluation		
17 - 20	6361	6525	1478	2999	Channel 2	☐	☒	☐	Required:		
					Channel 3	☐	☒	☐	☐ Yes ☒ No		
					Channel 4	☐	☒	☐	Archive Tape/CD No.:		
					Channel 5	☐	☐	☒	2 A/B		
					Channel 6	☐	☐	☒	Analysis Tape/CD No.:		
					Channel 7	☐	☐	☒			
					Channel 8	☐	☐	☒	N/A		
Analyst / SNT Level / Date: <i>Vic [Signature] / III / 11 MAR 2005</i>											

ISWT FORM No. UT 54 (Rev. 05/99)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number Exam 7

Page 1 of 1 ⑩

Watts Bar Unit 1
 RPV-W02-B
 LWR Hd Meridional @ 60 Deg

Cursor Box 1 of 1	
Scan Axis	14.89 - 15.82
Inc. Axis	59.48 - 64.34
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	60.38 - 65.25
Scan Axis	17.81 - 18.74

Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	60.38 - 65.25
Scan Axis	11.96 - 12.89

	Channel 3
Module Coordinates	
Inc. Axis	58.27 - 63.06
Scan Axis	17.39 - 18.32

	Channel 4
Module Coordinates	
Inc. Axis	58.27 - 63.06
Scan Axis	12.38 - 13.31

	Channel 5
Module Coordinates	
Inc. Axis	58.27 - 63.06
Scan Axis	14.90 - 15.83



LEVEL III

11 MAR 2005

Site/Plant : Waits Bar		Weld Identification: RPV-W02-B		Pro/Rev/Chg/ICN:		ISwT-PDI-AUT1/0/01&2		Examination No. : 8	
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 60°		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07B		Scan Path Drawing: SPMerid		Exam Date		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: David R. Klejan / II				10 March 2005		Start End		Start End	
						1640 1658		78 78	

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	1160	1484	Lower Limit	4986	4986	Beam Direction:	Cw/Ccw
Scan:	Boom Rotate	Upper Limit	3698	3700	Upper Limit	7014	7014	Transducer Size:	1.00
Increment:	Boom Pivot	Increment Interval	54		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	48
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default	Radius In.	88.19		EDAS Radius In.	88.19		Hoist (Pivot Point):	324.05

Module Parameters:		07B		Cal 13		Calibration Records:	Examination Notes:
Status	Angle	Direction	Scan Offset	Scan Offset		WAT-13	Check for limitations due to the proximity of the lower head instrumentation tubes.
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301	
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302	
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303	
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the core barrel anti-rotation lugs and the lower head instrumentation tubes.
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	

Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Channel 1	Yes	No	N/A	Attachment:
	Start	Stop	Start	Stop					
1 - 44	1483	3484	4986	7014	☐	☒	☐	☐	☐ Yes ☒ No
45 - 48	3533	3700	4986	6432	☐	☒	☐	☐	Further Evaluation Required:
					☐	☒	☐	☐	☐ Yes ☒ No
					☐	☐	☒	☒	Archive Tape/CD No.:
					☐	☐	☒	☒	2 A/B
					☐	☐	☒	☒	Analysis Tape/CD No.:
					☐	☐	☒	☒	N/A

Analyst / SNT Level / Date: *Visi N...* / *III* / *11 MAR 2005*

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number Exam 8

Page 1 of 1 

Watts Bar Unit 1
 RPV-W02-B
 LWR HD Meridional @ 60 Deg

Cursor Box 1 of 1	
Scan Axis	54.13 - 55.06
Inc. Axis	14.67 - 19.53
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	25.62 - 30.49
Scan Axis	51.21 - 52.14

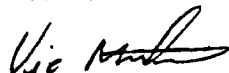
	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	25.62 - 30.49
Scan Axis	57.06 - 57.99

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	51.63 - 52.56

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	56.64 - 57.57

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	54.12 - 55.05

 III 11 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

ISWT Examination Summary Record										
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300009		
Examination Area:		Reactor Pressure Vessel								
Line/Assembly:		Lower Head Meridional Weld W2C								
Identification:		Lower Head at 120-degrees								
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	N I	H B	E	Analyst	Resolution Record	CNF No.	Remarks
AUT	ISWT-POH-AUT1/0/0 ICN 2	8,10 10 10 9 9	AUT0 AUTSLIC49 AUT55 AUT SLIC48T AUT55T	~ X X X X	- - - - -	-	VM VM VM VM VM			AUT0 for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.
Prepared By: <i>Buddy Lueder</i>				Date: 12-Mar-05			Page: 1 OF 1		Summary No: 300009	

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Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar			Weld Identification: RPV-W02-C			Pre/Rev/Chg/ICN: ISWT-PDI-AUT1/0/01&2		Examination No.: 9	
Project No.: 04-0368			Weld Description: Lwr Hd Meridional @ 120°			Device Configuration: WAT-WALCON-0001			
Mod.Conf.: 07A			Scan Path Drawing: SPMerid			Exam Date		Examination Time	
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III						10 March 2005		Surface Temperature °F	
								Start	End
								1604	1613
								78	78
Scan Controller Parameters		Increment Axis		Planned	Actual	Scan Axis		Planned	Actual
				Lower Limit	11496			Lower Limit	1160
Controller: PaR		Scan: Boom Pivot		Upper Limit	12522	DCI		Upper Limit	3662
				Increment Interval	54			3	
Increment: Room Rotate		Mode: Automatic Scan		Conversion Counts	100	Conversion Counts		100	Positional Parameters
				Conversion Units	Degrees			Degrees	
Scan Motion: Bi-directional		Correction: Default		Radius In.	88.19	Radius In.		88.19	
Module Parameters: 07A Cal 13						Calibration Records:		Examination Notes:	
Status		Angle	Direction	Scan Offset	Stop Offset	WAT-13		Check for limitations due to the proximity of the lower head instrumentation tubes.	
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304		Examination Remarks:	
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305		Limited examination due to the proximity of the core barrel anti-rotation lugs and the lower head instrumentation tubes.	
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 20	1481	12527	11497	3602	Channel 1	☐	☒	Further Evaluation	
					Channel 2	☐	☒	Required:	
					Channel 3	☐	☒	☐ Yes ☒ No	
					Channel 4	☐	☒	Archive Tape/CD No.:	
					Channel 5	☐	☒	2 A/B	
					Channel 6	☐	☒	Analysis Tape/CD No.:	
					Channel 7	☐	☒	N/A	
					Channel 8	☐	☒		
Analyst / SNT Level / Date: <i>Vic Nantz / III / 11 MAR 2005</i>									

ISWT FORM No. UT 56 (Rev. 05/92)

Enclosure 3

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

Exam Number Exam 9

Page 1 of 1 *20*

Watts Bar Unit 1
RPV-W02-C
LWR Hd Meridional @ 120 Deg

Cursor Box 1 of 1	
Scan Axis	16.96 - 17.89
Inc. Axis	119.48 - 124.34
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	120.44 - 125.27
Scan Axis	19.88 - 20.81

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	120.44 - 125.27
Scan Axis	14.03 - 14.96

	Channel 3
Module Coordinates	
Inc. Axis	118.25 - 123.09
Scan Axis	19.46 - 20.39

	Channel 4
Module Coordinates	
Inc. Axis	118.25 - 123.09
Scan Axis	14.45 - 15.38

	Channel 5
Module Coordinates	
Inc. Axis	118.25 - 123.09
Scan Axis	16.97 - 17.90

Vic [Signature]

LEVEL III

11 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W02-C		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 10			
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 120		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07B		Scan Path Drawing: SPMerid		Exam Date		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: David R. Kleisjan / II				10 March 2005		Start End		Start End	
						1705 1717		78 78	
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		1160		1537		Lower Limit	
Scan: Boom Rotate		Upper Limit		3698		3698		Upper Limit	
Increment: Boom Pivot		Increment Interval		54		DCI		3	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Degrees		Conversion Units		Degrees	
Correction: Default		Radius In.		88.19		EDAS Radius In.		88.19	
Positional Parameters		Beam Direction:		Cw/Ccw		Transducer Size:		1.00	
		Code % of Overlap:		10		Number of Scans:		48	
		Head Rotate Position:		90.00		Hoist (Pivot Point):		324.05	
Module Parameters: 07B		Cal 13		Calibration Records:		Examination Notes:			
Status Angle Direction Scan Offset Stop Offset		WAT-13		Check for limitations due to the proximity of the lower head					
Channel 1 On 55 (+) + 1.40(in) - 1.35(in)		0801301		instrumentation tubes.					
Channel 2 On 55 (-) - 1.40(in) - 1.35(in)		0801302							
Channel 3 On SLIC 40 (+) + 2.00(in) + 1.72(in)		0801303							
Channel 4 On SLIC 40 (-) - 2.00(in) + 1.72(in)		0801304		Examination Remarks:					
Channel 5 On 0L (+) + 0.00(in) + 1.72(in)		0801305		Limited examination due to the proximity of the core barrel					
Channel 6 Off N/A N/A N/A N/A		N/A		anti-rotation lugs and the lower head instrumentation tubes.					
Channel 7 Off N/A N/A N/A N/A		N/A							
Channel 8 Off N/A N/A N/A N/A		N/A							
Increment & Scan Positions Actual		Recordable Indications		Analyst Remarks					
Scan No.(s)		Start Stop Start Stop		Yes No N/A		Attachment:			
8 - 48		1537 3698 10986 13014		Channel 1 ☐ ☒ ☐		☐ Yes ☒ No			
				Channel 2 ☐ ☒ ☐		Further Evaluation			
				Channel 3 ☐ ☒ ☐		Required:			
				Channel 4 ☐ ☒ ☐		☐ Yes ☒ No			
				Channel 5 ☐ ☐ ☒		Archive Tape/CD No.:			
				Channel 6 ☐ ☐ ☒		2 A/B			
				Channel 7 ☐ ☐ ☒		Analysis Tape/CD No.:			
				Channel 8 ☐ ☐ ☒		N/A			
Analyst / SNT Level / Date: <i>Wie N/A / JEE 11 MAR 2005</i>									

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number 10

Page 1 of 2

Watts Bar Unit 1
 RPV-W02-C
 LWR HD Meridional @ 120 Deg

Cursor Box 1 of 1	
Scan Axis	114.13 - 115.06
Inc. Axis	14.67 - 19.53
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	26.18 - 31.01
Scan Axis	111.21 - 112.14

	Channel 1
	Summary
Feature Analysis	
Comments	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	26.18 - 31.01
Scan Axis	117.06 - 117.99

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	111.63 - 112.56

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	116.64 - 117.57

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	114.12 - 115.05



LEVEL III 11.MAR 2005

ISwT Examination Summary Record

Project No: 368		Site: Watts Bar Nuclear Plant Unit 1		Summary Sheet No.: 300034	
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Lower Head Meridional Weld W2D Lower Head at 180-degrees			
		O T N H R E			
NDE Method	Procedure Rev./Chg./ICH	Exam Number(s)	Exam Angle L R	Analyst	Resolution Record
				CNF No.	Remarks
AUT	ISWT-PDI-AUT1/D0 ICH 2	11,12 12 12 11 11	AUT0 AUTSLIC40 AUT55 AUT SLIC40T AUT55T	- X X X X	- - - - -
				VM VM VM VM VM	
					AUT0 for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.
Prepared By:		Date:		Page:	
Gladys Lagarde		12-Mar-05		1 OF 1	
				Summary No: 300034	

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American Society of Mechanical Engineers (ASME)

Attachments

ISWT FORM No. UT 50 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number exam 11

Page 1 of 2

Watts Bar Unit 1
 RPV-W02-D
 LWR Hd Meridional @ 180 Deg

Cursor Box 1 of 1	
Scan Axis	17.77 - 18.70
Inc. Axis	179.48 - 184.34
Depth In Material	2.29 - 2.94
Module Coordinates	Channel 1
Inc. Axis	180.42 - 185.27
Scan Axis	20.69 - 21.62
Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	
Module Coordinates	Channel 2
Inc. Axis	180.42 - 185.27
Scan Axis	14.84 - 15.77
Module Coordinates	Channel 3
Inc. Axis	178.25 - 183.07
Scan Axis	20.27 - 21.20
Module Coordinates	Channel 4
Inc. Axis	178.25 - 183.07
Scan Axis	15.26 - 16.19
Module Coordinates	Channel 5
Inc. Axis	178.25 - 183.07
Scan Axis	17.78 - 18.71

W. M. [Signature] III 10 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar			Weld Identification: RPV-W02-D		Pre/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 12		
Project No.: 04-0368			Weld Description: Lwr Hd Circidental @ 180		Device Configuration: WAT-WALCON-0001				
Mod.Conf.: 07B			Scan Path Drawing: SPMcrd		Exam Date: 10 March 2005		Examination Time		Surface Temperature °F
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II							Start	End	Start
							1720	1733	78
Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	1160	1538	Lower Limit	16986	16998	Beam Direction:	Cw/Ccw
Scan:	Boom Rotate	Upper Limit	3698	3698	Upper Limit	19014	19005	Transducer Size:	1.00
Increment:	Boom Pivot	Increment Interval	54		DCI	3		Code % of Overlap:	10
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	48
Scan Motion:	Bi-directional	Conversion Units	Degrees		Conversion Units	Degrees		Head Rotate Position:	90.00
Correction:	Default	Radius In.	88.19		EDAS Radius In.	88.19		Hoist (Pivot Point):	324.05
Module Parameters: 07B Cal 13					Calibration Records:		Examination Notes:		
	Status	Angle	Direction	Scan Offset	Step Offset	WAT-13	Check for limitations due to the proximity of the lower head instrumentation tubes.		
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the core barrel and rotation lugs and the lower head instrumentation tubes.		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop	Channel 1	☐	☒	☐	
8 - 48	1538	3698	16986	19014	Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☐	☒	Archive Tape/CD No.:
					Channel 6	☐	☐	☒	2 A/R
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:
					Channel 8	☐	☐	☒	N/A
Analyst / SNT Level / Date: <i>Vic M... / III / 10 MAR 2005</i>									

ISWT FORM No. UT 58 (Rev. 05/03)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Attachments

Exam Number 12

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Watts Bar Unit 1
RPV-W02-D
LWR HD Meridional @ 180 Deg

Cursor Box 1 of 1	
Scan Axis	174.13 - 175.06
Inc. Axis	14.67 - 19.53
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	26.17 - 31.01
Scan Axis	171.21 - 172.14

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	26.17 - 31.01
Scan Axis	177.06 - 177.99

	Channel 3
Module Coordinates	
Inc. Axis	-
Scan Axis	171.63 - 172.56

	Channel 4
Module Coordinates	
Inc. Axis	-
Scan Axis	176.64 - 177.57

	Channel 5
Module Coordinates	
Inc. Axis	-
Scan Axis	174.12 - 175.05

W. B. Smith LEVEL III 11 MAR 2005

Enclosure 3

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

ISwT Examination Summary Record											
Project No: 356				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300011			
Examination Area:		Reactor Pressure Vessel									
Line/Assembly:		Lower Head Meridional Weld W2E									
Identification:		Lower Head at 240-degrees									
NDE Method	Procedure Rev/Chg/ICN	Exam Number(s)	Exam Angle	O T N H R E		Analyst	Resolution Record	CNF No.	Remarks		
AUT	ISWT-PDI-AUT1A0.0 ICN 2	13,14	AUTO	-	-				AUTO for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.		
		14	AUTSLIC40	X	-	VM					
		14	AUT55	X	-	VM					
		13	AUT SLIC40T	X	-	VM					
		13	AUT55T	X	-	VM					
Prepared By:				Date:				Page:		Summary No:	
Grady Lagleder				12-Mar-05				1 OF 1		300011	

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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W02-E		Pro/Rev/Chg/ICN: ISWT-FD1-AUT1/0/0/1&2		Examination No.: 13			
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 240		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07A		Scan Path Drawing: SPMerid		Exam Date: 10 March 2005		Examination Time: Start 1537 End 1544		Surface Temperature °F: Start 78 End 78	
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		23496		23496		Planned	
Scan: Boom Pivot		Upper Limit		24522		24522		Actual	
Increment: Boom Rotate		Increment Interval		54		DCI		3	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Degrees		Conversion Units		Degrees	
Correction: Default		Radius In.		88.19		Radius in.		88.19	
Module Parameters: 07A		Cal 13				Calibration Records: WAT-13		Examination Notes:	
Status	Angle	Direction	Scan Offset	Step Offset	WAT-13		Check for limitations due to the proximity of the lower head instrumentation tubes.		
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801304	Examination Remarks:		
Channel 5	On	OL	(+)	+ 0.00(in)	+ 1.72(in)	0801305	Limited examination due to the proximity of the core barrel anti-rotation lugs and the lower head instrumentation tubes.		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop	Channel 1	☐	☒	☐	☐ Yes ☒ No
1 - 20	23495	24528	1481	2999	Channel 2	☐	☒	☐	Further Evaluation
					Channel 3	☐	☒	☐	Required:
					Channel 4	☐	☒	☐	☐ Yes ☒ No
					Channel 5	☐	☒	☐	Archive Tape/CD No.:
					Channel 6	☐	☒	☐	I A/B
					Channel 7	☐	☒	☐	Analysis Tape/CD No.:
					Channel 8	☐	☒	☐	N/A
Analyst / SNT Level / Date: <i>Wic M...</i> / III / 10 MAR 2005									

Enclosure 3

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

Exam Number exam 13

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Watts Bar Unit 1
RPV-W02-E
LWR Hd Meridional @ 240 Deg

Cursor Box 1 of 1	
Scan Axis	14.71 - 15.64
Inc. Axis	239.48 - 244.34
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	240.43 - 245.27
Scan Axis	17.63 - 18.56

Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	240.43 - 245.27
Scan Axis	11.78 - 12.71

	Channel 3
Module Coordinates	
Inc. Axis	238.26 - 243.08
Scan Axis	17.21 - 18.14

	Channel 4
Module Coordinates	
Inc. Axis	238.26 - 243.08
Scan Axis	12.20 - 13.13

	Channel 5
Module Coordinates	
Inc. Axis	238.26 - 243.08
Scan Axis	14.72 - 15.65

Visi Mark LEVEL III 10 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD													
Site/Plant: Watts Bar		Weld Identification: RPV-W02-E		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 14							
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 240		Device Configuration: WAT-WALCON-0001									
Mod.Conf.: 07B		Scan Path Drawing: SPMetd		Exam Date: 10 March 2005		Examination Time: Start 1739, End 1752		Surface Temperature °F: Start 78, End 78					
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II													
Scan Controller Parameters Controller: PaR Scan: Boom Rotate Increment: Boom Pivot Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default		Increment Axis Lower Limit: 1160 Upper Limit: 3698 Increment Interval: 54 Conversion Counts: 100 Conversion Units: Degrees Radius In: 88.19		Planned 1160 3698 54 100 Degrees 88.19		Actual 1538 3701 3 100 Degrees 88.19		Scan Axis Lower Limit: 22986 Upper Limit: 25014 DCI: 3 Conversion Counts: 100 Conversion Units: Degrees Radius In: 88.19		Positional Parameters Beam Direction: Cw/Ccw Transducer Size: 1.00 Code % of Overlap: 10 Number of Scans: 48 Head Rotate Position: 90.00 Hoist (Pivot Point): 324.05			
Module Parameters: 07B		Cal 13		Calibration Records: WAT-13		Examination Notes: Check for limitations due to the proximity of the lower head instrumentation tubes.							
Status		Angle		Direction		Scan Offset		Step Offset					
Channel 1 On		55		(-)		+ 1.40(in)		- 1.35(in)		0801301			
Channel 2 On		55		(-)		- 1.40(in)		- 1.35(in)		0801302			
Channel 3 On		SLIC 40		(+))		+ 2.00(in)		+ 1.72(in)		0801303			
Channel 4 On		SLIC 40		(-)		- 2.00(in)		+ 1.72(in)		0801304			
Channel 5 On		0L		(-)		+ 0.00(in)		+ 1.72(in)		0801305			
Channel 6 Off		N/A		N/A		N/A		N/A		N/A			
Channel 7 Off		N/A		N/A		N/A		N/A		N/A			
Channel 8 Off		N/A		N/A		N/A		N/A		N/A			
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks					
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8	Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 2 A/B Analysis Tape/CD No.: N/A
	Start	Stop	Start	Stop									
8 - 37	1538	3101	22986	25014	☐	☒	☐	☐	☐	☐	☐	☐	
38 - 48	3158	3701	23568	25014	☐	☒	☐	☐	☐	☐	☐	☐	
Analyst / SNT Level / Date: <i>W. Kleinjan / II / 11 MAR 2005</i>													

ISWT FORM No. UT 58 (Rev. 05/92)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

Exam Number 14

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Watts Bar Unit 1
 RPV-W02-E
 LWR HD Meridional @ 240 Deg

Cursor Box 1 of 1	
Scan Axis	234.13 - 235.06
Inc. Axis	14.67 - 19.53
Depth In Material	2.29 - 2.94
Module Coordinates	Channel 1
Inc. Axis	26.18 - 31.01
Scan Axis	231.21 - 232.14
Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	
Module Coordinates	Channel 2
Inc. Axis	26.18 - 31.01
Scan Axis	237.06 - 237.99
Module Coordinates	Channel 3
Inc. Axis	-
Scan Axis	231.63 - 232.56
Module Coordinates	Channel 4
Inc. Axis	-
Scan Axis	236.64 - 237.57
Module Coordinates	Channel 5
Inc. Axis	-
Scan Axis	234.12 - 235.05



LEVEL III 11 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

ISWT Examination Summary Record											
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300012			
Examination Area:		Reactor Pressure Vessel									
Line/Assembly:		Lower Head Meridional Weld W2F									
Identification:		Lower Head at 300-degrees									
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	O T N H R E ↓ R	Analyst	Resolution Record	CNF No.	Remarks			
AUT	ISWT-PDI-AUT-1/0/0 ICN 2	15,16	AUT0	-	-			AUT10 for thickness measurement only. Examination limited due to the core barrel support lugs and the lower head penetrations.			
		16	AUTSLIC40	X	-	VM					
		16	AUT55	X	-	VM					
		15	AUT SLIC40T	X	-	VM					
		15	AUT55T	X	-	VM					
Prepared By:		<i>Barry Lagler</i>				Date: 12-Mar-05		Page: 1 OF 1		Summary No: 300012	

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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief I-ISI-18

Attachments

 IH SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W02-F		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/C/01&2		Examination No.: 15			
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 300		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 07A		Scan Path Drawing: SPMerid		Exam Date: 10 March 2005		Examination Time: Start 1507 End 1521		Surface Temperature °F: Start 78 End 78	
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned	Actual	Scan Axis		Planned	Actual
Controller: PaR		Lower Limit		29496	29496	Lower Limit		1160	1480
Scan: Boom Pivot		Upper Limit		30522	30522	Upper Limit		3662	3000
Increment: Boom Rotate		Increment Interval		54		DCI			
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Degrees		Conversion Units		Degrees	
Correction: Default		Radius In.		88.19		Radius In.		88.19	
Module Parameters: 07A		Cal 13				Calibration Records: WAT-13		Examination Notes:	
Status		Angle	Direction	Scan Offset	Step Offset	0801301		Check for limitations due to the proximity of the lower head instrumentation tubes.	
Channel 1	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 2	On	55	(+)	+ 1.40(in)	+ 1.35(in)	0801303			
Channel 3	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304			
Channel 4	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801305			
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)			Examination Remarks:	
Channel 6	Off	N/A	N/A	N/A	N/A			Limited examination due to the proximity of the core barrel anti-rotation lugs and the lower head instrumentation tubes.	
Channel 7	Off	N/A	N/A	N/A	N/A				
Channel 8	Off	N/A	N/A	N/A	N/A				
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	Start	Stop	Start	Stop					
1 - 20	29490	30529	1478	2999	☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
Analyst / SNT Level / Date: Vic M... / III / 10 MAR 2005					Attachment: ☐ Yes ☒ No				
					Further Evaluation Required: ☐ Yes ☒ No				
					Archive Tape CD No.: 1 A/B				
					Analysis Tape CD No.: N/A				

ISWT FORM No. UT 50 (Rev. 05/01)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Attachments

Exam Number 15

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Watts Bar Unit 1
RPV-W02-F
LWR Hd Meridional @ 300 Deg

Cursor Box 1 of 1	
Scan Axis	12.34 - 13.27
Inc. Axis	299.48 - 304.34
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	300.45 - 305.28
Scan Axis	15.26 - 16.19

Feature Analysis	Channel 1
Comments	Summary
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	300.45 - 305.28
Scan Axis	9.41 - 10.34

	Channel 3
Module Coordinates	
Inc. Axis	298.28 - 303.06
Scan Axis	14.84 - 15.77

	Channel 4
Module Coordinates	
Inc. Axis	298.28 - 303.06
Scan Axis	9.83 - 10.76

	Channel 5
Module Coordinates	
Inc. Axis	298.28 - 303.06
Scan Axis	12.35 - 13.28

Vic [Signature] LEVEL III 10 MAR 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-18

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-W02-F		Pro/Rev/Chg/ICN: ISWT-PDF-AUT1/0/0/1&2		Examination No.: 16			
Project No.: 04-0368		Weld Description: Lwr Hd Meridional @ 30°		Device Configuration: WAT-WALCON-0001					
Mod.Con.L: 07B		Scan Path Drawing: SPMerid		Exam Date: 10 March 2005		Examination Time: Start 1758 End 1813		Surface Temperature °F: Start 78 End 78	
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II									
Scan Controller Parameters Controller: PaR Scan: Boom Rotate Increment: Boom Pivot Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default		Increment Axis Lower Limit: 1160 Upper Limit: 3698 Increment Interval: 54 Conversion Counts: 100 Conversion Units: Degrees Radius In.: 88.19		Planned 1160 3698 54 100 Degrees 88.19		Actual 1552 3699 3 100 Degrees 88.19		Positional Parameters Beam Direction: Cw/Ccw Transducer Size: 1.00 Code % of Overlap: 10 Number of Scans: 48 Head Rotate Position: 90.00 Hoist (Pivot Point): N/A	
Module Parameters: 07B Cal 13				Calibration Records: WAT-13		Examination Notes: Check for limitations due to the proximity of the lower head instrumentation tubes.			
Channel 1	On	55	(+)	+ 1.40(in)	- 1.35(in)	0801301			
Channel 2	On	55	(-)	- 1.40(in)	- 1.35(in)	0801302			
Channel 3	On	SLIC 40	(+)	+ 2.00(in)	+ 1.72(in)	0801303			
Channel 4	On	SLIC 40	(-)	- 2.00(in)	+ 1.72(in)	0801304		Examination Remarks:	
Channel 5	On	0L	(+)	+ 0.00(in)	+ 1.72(in)	0801305		Limited examination due to the proximity of the core barrel anti-rotation lugs and the lower head instrumentation tubes.	
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
8 - 39	1552	3209	28986	31014	Channel 1 ☐	☒	☐	Further Evaluation	
40 - 42	3273	3378	28986	30342	Channel 2 ☐	☒	☐	Required:	
43 - 48	3425	3698	29769	30342	Channel 3 ☐	☒	☐	☐ Yes ☒ No	
					Channel 4 ☐	☒	☐	Archive Tape/CD No.:	
					Channel 5 ☐	☐	☒	2 A/B	
					Channel 6 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 7 ☐	☐	☒	N/A	
					Channel 8 ☐	☐	☒		
Analyst / SNT Level / Date: <i>Vic Nicks / III / 11 MAR 2005</i>									

ISWT FORM No. UT50 (Rev.0503)

Enclosure 3

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-18

Attachments

Exam Number 16

Page 1 of 2

Watts Bar Unit 1
RPV-W02-F
LWR HD Meridional @ 300 Deg

Cursor Box 1 of 1	
Scan Axis	294.13 - 295.06
Inc. Axis	21.52 - 26.38
Depth In Material	2.29 - 2.94

	Channel 1
Module Coordinates	
Inc. Axis	26.20 - 31.01
Scan Axis	291.21 - 292.14

	Channel 1
Feature Analysis	Summary
Comments	
:	No Recordable Indications channels
:	1, 2, 3, 4, and 5.
:	
:	

	Channel 2
Module Coordinates	
Inc. Axis	26.20 - 31.01
Scan Axis	297.06 - 297.99

	Channel 3
Module Coordinates	
Inc. Axis	24.04 - 28.85
Scan Axis	291.63 - 292.56

	Channel 4
Module Coordinates	
Inc. Axis	24.04 - 28.85
Scan Axis	296.64 - 297.57

	Channel 5
Module Coordinates	
Inc. Axis	24.04 - 28.85
Scan Axis	294.12 - 295.05

 LEVEL III 11 MAR 2005

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-19

Summary:

Due to design configuration of the reactor vessel outlet nozzles, volumetric examination of the outlet nozzle-to-vessel welds during the Unit 1 Cycle 6 Refueling Outage resulted in less than essentially 100 percent of ASME code coverage being achieved. The design configuration of the outlet nozzle integral extension interferes with performance of an ultrasonic scan from the integral extension side of the nozzle to vessel weld, thus preventing essentially 100 percent examination of the required full volume. Volumetric examination of this component is required in accordance with ASME Section XI Table IWB-2500-1, Examination Category B-D, Item Number B3.90. The full volume weld examination requirement is illustrated by ASME Section XI Figure IWB-2500-7(b).

An ultrasonic examination was performed on accessible areas to the maximum extent practical, given the physical limitations of the outlet nozzle-to-vessel welds. The design configuration limits the best effort ultrasonic examination to approximately 76 percent of the required volume of each of the outlet nozzle-to-vessel welds. The volumetric examinations resulted in no recordable indications for nozzles N-15, N-16 and N-17. Two code allowable indications were recorded for nozzle N-18. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the outlet nozzle-to-vessel welds.

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested from the extent of examination requirement due to physical restrictions. Relief is requested from these examinations because the code requirement is impractical to implement.

System/Component(s) for Which Relief is Requested:

- Code Class 1 Reactor Pressure Vessel Outlet Nozzle-to-Vessel Welds.
- Weld Identifiers: N15, N16, N17, and N18.

Reference ISI Drawing ISI-0427-C-01 and ISI-0427-C-06.

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-19

Code Requirement:

WBN's Code of Record is ASME Section XI, 1989 Edition. ASME Section XI, 1989 Edition, Table IWB-2500-1, Examination Category B-D, Item Number B3.90, Reactor Vessel Nozzle-to-Vessel Welds, examination requirement as defined by Figure IWB-2500-7(b).

Code Requirements from Which Relief is Requested:

Relief is requested from performing the required volumetric examination on essentially 100 percent of the reactor vessel outlet nozzle-to-vessel welds.

Basis for Relief:

The design configuration of the reactor vessel outlet nozzles precludes a volumetric examination from the vessel shell of the required volume for the outlet nozzle-to-vessel Welds N15, N16, N17, and N18. The configuration limits the volumetric examination of the code required examination volume to 76 percent. Reference Enclosure 5, *Examination Area Coverage Report for Watts Bar Nuclear Plant*, for vendor discussion of examination coverage calculation.

Alternative Examinations:

In lieu of the code required 100 percent volumetric examination, an ultrasonic examination was performed on accessible areas to the maximum extent practical given the physical limitations of the outlet nozzle-to-vessel welds. Refer to Enclosure 4 Attachments for the examination data reports.

Justification for the Granting of Relief:

The design configuration of the reactor vessel outlet nozzles precludes ultrasonic examination of essentially 100 percent of the outlet nozzle-to-vessel welds. The nozzle-to-vessel weld examinations were performed using automated ultrasonic (AUT) scanning equipment and AUT data recording/analysis systems. The target scope of the examinations included 100 percent of the accessible weld. The examination coverage requirements for the nozzle-to-vessel welds are discussed in Enclosure 5.

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-19

Examination of the nozzle-to-vessel welds is obstructed by the outlet nozzle integral extension. The design configuration allows for ultrasonic examination of approximately 76 percent of the required volume.

The ASME Section XI code requirements for reflectors oriented parallel and transverse to the weld stipulate that the angle beam search units shall be aimed, with the search unit manipulated, so that the ultrasonic beams pass throughout the entire volume of weld metal. The required examination volume A-B-C-D-E-F-G-H-I is depicted on ASME Section XI Figure IWB-2500-7(b). The outlet nozzle integral extension limits two-direction transverse coverage from the integral extension side of the nozzle-to-vessel weld. The integral extension restricts the ultrasonic search unit scan surface.

In order to examine the outlet nozzle-to-vessel welds in accordance with the code requirement, the nozzles would require extensive modification. This modification would be impractical to implement. Other examination techniques were also determined to be impractical for this configuration. Due to the design configuration of the outlet nozzle-to-vessel welds, ultrasonic examination from the inside surface of the vessel provides more coverage than ultrasonic examination from the outside surface where the outside surface has limited access. Use of AUT equipment from the inside surface reduces personnel radiation exposure

The outlet nozzle-to-vessel welds received 100 percent two-direction parallel coverage and 100 percent two-direction transverse coverage from the shell side of the nozzle-to-vessel weld with the sound beam directed toward the weld. Limited two-direction transverse scans were performed from the integral extension side. A one-direction parallel examination was also performed from the nozzle bore resulting in 100 percent coverage. The results of these examinations recorded no reportable indications in Welds N-15, N-16 and N-17. Two code allowable indications were recorded in Weld N-18. The best effort ultrasonic examination provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the outlet nozzle-to-vessel welds.

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-19

Conformance with the referenced code requirement is impractical, therefore, this request for relief is submitted pursuant to 10CFR 50.55a(g)(5)(iii).

Implementation Schedule:

This request for relief is applicable to WBN's first 10-year inspection interval which began May 27, 1996 and ends December 26, 2006.

ENCLOSURE 4

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
FIRST 10-YEAR INTERVAL INSERVICE INSPECTION (ISI) INTERVAL
REQUEST FOR RELIEF 1-ISI-19

ATTACHMENTS

- | | | |
|----|---------------------------------------|-----------|
| 1. | Examination Data Sheets for Weld N-15 | Pg E4A-2 |
| 2. | Examination Data Sheets for Weld N-16 | Pg E4A-13 |
| 3. | Examination Data Sheets for Weld N-17 | Pg E4A-24 |
| 4. | Examination Data Sheets for Weld N-18 | Pg E4A-35 |

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

ISWT Examination Summary Record									
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300020	
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Nozzle to Shell Weld N-15 Outlet Nozzle at 338-degrees							
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	O T N H R E J B	Anchors	Resolution Record	CNF No.	Remarks	
AUT	ISWT-PDI-AUT1/0/0 ICN 2	105 106 105 105	AUT0 AUTSLIC40 AUT SLIC40T AUT55T	- X X X	- - - -	CB CB CB		AUT0 for thickness measurement only. Examinations performed from vessel shell were limited due to nozzle integral extension. Examinations performed from nozzle bore.	
	ISWT-PDI-AUT4/0/0	99-104	AUT PA16	X	-	CB			
Prepared By: <i>Barry Longden</i>				Date: 13-Mar-05		Page: 1 OF 1		Summary No: 300020	

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Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N15		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 99			
Project No.: 04-0368		Weld Description: Out Nozzle @ 338° (5°-65°)		Device Configuration: WAT-NOZCON-0001					
Mod. Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time: Start 2048 End 2100		Surface Temperature °F: Start 76 End 76	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / II Alan Schaefer / N/A									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	Start	Stop	Start	Stop					
1 - 23	85.42	107.42	5.00	65.00	☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☐	☒	☐	☐
					☐	☐	☐	☒	☐
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
Analyst / SNT Level / Date:					JRM / III / 09 March 2005				

ISWT FORM No. UT 56 (Rev. 05/92)

Site/Plant : Watts Bar		Weld Identification: RPV-N15		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0		Examination No.: 190	
Project No.: 04-0368		Weld Description: Out Noz to Sh @ 338" (64" 12)		Device Configuration: WAT-NOZCON-0001			
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date		Examination Time	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / II Alan Schaefer / N/A				08 March 2005		Start	End
						2103	2116
						76	76

Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	85.42	85.42	Lower Limit	64.00	64.00	Beam Direction:	Two
Scan:	Head Rotate	Upper Limit	107.42	107.42	Upper Limit	125.04	125.04	Transducer Size:	22mm x 45mm
Increment:	Boom Extend	Increment Interval	1.00		Resolution	0.20		Code % of Overlap:	N/A
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	23
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Boom Rotate Position:	358.00
Correction:	Default				Radius In.	14.50		Hoist @ Nozzle C/L	83.98

Module Parameters: 30					Cal 201		Calibration Records:		Examination Notes:	
Status	Angle	Direction	Scan Offset	Step Offset			WAT-201			
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)			1200201		
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)			1200201		
Channel 3	Off	N/A	N/A	N/A	N/A			N/A		
Channel 4	Off	N/A	N/A	N/A	N/A			N/A		Examination Remarks:
Channel 5	Off	N/A	N/A	N/A	N/A			N/A		
Channel 6	Off	N/A	N/A	N/A	N/A			N/A		
Channel 7	Off	N/A	N/A	N/A	N/A			N/A		
Channel 8	Off	N/A	N/A	N/A	N/A			N/A		

Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:		
	Start	Stop	Start	Stop	Channel 1	☐	☒	☐	☐ Yes ☒ No	
1 - 23	85.42	107.42	64.00	125.04	Channel 2	☐	☒	☐	Further Evaluation	
					Channel 3	☐	☐	☒	Required:	
					Channel 4	☐	☐	☒	☐ Yes ☒ No	
					Channel 5	☐	☐	☒	Archive Tape/CD No.:	
					Channel 6	☐	☐	☒	8	
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8	☐	☐	☒	N/A	

Analyst / SNT Level / Date: J. M. Barone / III / 09 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N15		Pre/Rev/Chg/ICN: ISwT-PDI-AUT4/0/0		Examination No.: 101			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 338° (124°-1)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / II Abu Schaefer / N/A						Start: 2119		End: 2131	
						Start: 76		End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius in.		14.50	
Positional Parameters									
Beam Direction: Twd									
Transducer Size: 22mm x 45mm									
Code % of Overlap: N/A									
Number of Scans: 23									
Boom Rotate Position: 358.00									
Hoist @ Nozzle CL: 83.98									
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 23	85.42	107.42	124.00	185.04	Channel 1 ☐	☒	☐	☐ Yes ☒ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒	8	
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: C. M. Bann / III / 09 March 2005									

ISWT FORM No. UT 58 (Rev. 05/92)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD											
Site/Plant: Watts Bar		Weld Identification: RPV-N15		Pre/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0		Examination No.: 102					
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 238" (184"-2)		Device Configuration: WAT-NOZCON-0001							
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time		Surface Temperature °F			
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / II Alan Schaefer / N/A						Start 2134		End 2153			
Data Acquisition											
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis			
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit			
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit			
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20			
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100			
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees			
Correction: Default						Radius In.		14.50			
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:			
Status		Angle		Direction		Scan Offset		Step Offset			
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)			
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)			
Channel 3 Off		N/A		N/A		N/A		N/A			
Channel 4 Off		N/A		N/A		N/A		N/A			
Channel 5 Off		N/A		N/A		N/A		N/A			
Channel 6 Off		N/A		N/A		N/A		N/A			
Channel 7 Off		N/A		N/A		N/A		N/A			
Channel 8 Off		N/A		N/A		N/A		N/A			
Data Analysis											
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks				
Increment Position		Scan Position									
Start Stop		Start Stop									
1 - 23		85.42 107.42		184.00 245.04							
				Channel 1 ☐ Yes ☒ No ☐ N/A			Attachment: ☐ Yes ☒ No				
				Channel 2 ☐ Yes ☒ No ☐ N/A			Further Evaluation				
				Channel 3 ☐ Yes ☒ No ☐ N/A			Required:				
				Channel 4 ☐ Yes ☒ No ☐ N/A			☐ Yes ☒ No				
				Channel 5 ☐ Yes ☒ No ☐ N/A			Archive Tape/CD No.:				
				Channel 6 ☐ Yes ☒ No ☐ N/A			8				
				Channel 7 ☐ Yes ☒ No ☐ N/A			Analysis Tape/CD No.:				
				Channel 8 ☐ Yes ☒ No ☐ N/A			N/A				
Analyst / SNT Level / Date: <i>C. M. Barone / III / 09 March 2005</i>											

ISWT-PDI-UT 58 (Rev. 0502)

Attachments

15WT FORM No. UT 50 (Rev. 03/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD												
Site/Plant: Watts Bar			Weld Identification: RPV-N15			Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0			Examination No.: 104			
Project No.: 04-0368			Weld Description: Out Nozzle Sh @ 238° (304°-3)			Device Configuration: WAT-NOZCOON-0001						
Mod.Conf.: 30			Scan Path Drawing: SPNOZOUT			Exam Date: 08 March 2005		Examination Time: Start 2211, End 2223		Surface Temperature °F: Start 76, End 76		
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / II Alan Schaefer / N/A												
Data Acquisition												
Scan Controller Parameters			Increment Axis		Planned	Actual	Scan Axis		Planned	Actual	Positional Parameters	
Controller: PaR			Lower Limit		85.42	85.42	Lower Limit		304.00	304.00	Beam Direction: Twd	
Scan: Head Rotate			Upper Limit		107.42	107.42	Upper Limit		366.00	366.00	Transducer Size: 22mm x 45mm	
Increment: Boom Extend			Increment Interval		1.00		Resolution		0.20		Code % of Overlap: N/A	
Mode: Automatic Scan			Conversion Counts		100		Conversion Counts		100		Number of Scans: 23	
Scan Motion: Bi-directional			Conversion Units		Inches		Conversion Units		Degrees		Boom Rotate Position: 358.00	
Correction: Default							Radius In.		14.50		Hoist @ Nozzle C/L: 83.98	
Module Parameters: 30			Cal 201			Calibration Records: WAT-201			Examination Notes:			
Sinus Angle Direction Scan Offset Step Offset												
Channel 1 On PA16-L (-) + 90.00(deg) + 0.00(in)						1200201						
Channel 2 On PA16-S (-) + 90.00(deg) + 0.00(in)						1200201						
Channel 3 Off N/A N/A N/A N/A						N/A						
Channel 4 Off N/A N/A N/A N/A						N/A			Examination Remarks:			
Channel 5 Off N/A N/A N/A N/A						N/A						
Channel 6 Off N/A N/A N/A N/A						N/A						
Channel 7 Off N/A N/A N/A N/A						N/A						
Channel 8 Off N/A N/A N/A N/A						N/A						
Data Analysis												
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks				
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:				
	Start	Stop	Start	Stop				☐ Yes ☒ No				
1 - 23	85.42	107.42	304.00	366.00	Channel 1 ☐	☒	☐	Further Evaluation				
					Channel 2 ☐	☒	☐	Required:				
					Channel 3 ☐	☐	☒	☐ Yes ☒ No				
					Channel 4 ☐	☐	☒	Archive Tape/CD No.:				
					Channel 5 ☐	☐	☒	8				
					Channel 6 ☐	☐	☒	Analysis Tape/CD No.:				
					Channel 7 ☐	☐	☒	N/A				
					Channel 8 ☐	☐	☒					
Analyst / SNT Level / Date: C. M. Baum / II / 09 March 2005												

ISWT FORM No. UT 50 (Rev. 05/02)

**Inservice Inspection Program
Request for Relief 1-ISI-19**

Attachments

 3HI SOUTH ESTECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD																																																																																																																				
Site/Plant : Watts Bar			Weld Identification: RPV-N15			Pro/Rev/Chg/ICN: ISwT-PDL-AUT11/0/01&2		Examination No.: 105																																																																																																												
Project No.: 04-0368			Weld Description: Outlet Noz-to-Sh @ 338°			Device Configuration: WAT-WALCON-0001																																																																																																														
Mod.Conf.: 09			Scan Path Drawing: SPNOZOUT			Exam Date		Surface Temperature °F																																																																																																												
Data Acquisition Operator (s) / SNT Level: Carlos Barrera / III Kelly Daigle / N/A						12-Mar-05		Start 1600	End 1610																																																																																																											
								Start 78	End 78																																																																																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Scan Controller Parameters</th> <th colspan="2">Increment Axis</th> <th>Planned</th> <th>Actual</th> <th colspan="2">Scan Axis</th> <th>Planned</th> <th>Actual</th> <th colspan="2">Positional Parameters</th> </tr> </thead> <tbody> <tr> <td>Controller:</td> <td colspan="2">PaR</td> <td>Lower Limit</td> <td colspan="2">2238</td> <td>2601</td> <td>Lower Limit</td> <td colspan="2">9000</td> <td>9000</td> <td>Beam Direction:</td> <td>Cw/Ccw</td> </tr> <tr> <td>Scan:</td> <td colspan="2">Circumferential</td> <td>Upper Limit</td> <td colspan="2">2958</td> <td>2972</td> <td>Upper Limit</td> <td colspan="2">9000</td> <td>9000</td> <td>Transducer Size:</td> <td>1.00</td> </tr> <tr> <td>Increment:</td> <td colspan="2">Radial</td> <td>Increment Interval</td> <td colspan="2">90</td> <td></td> <td>DCI</td> <td colspan="2">7</td> <td></td> <td>Code % of Overlap:</td> <td>10</td> </tr> <tr> <td>Mode:</td> <td colspan="2">Automatic Scan</td> <td>Conversion Counts</td> <td colspan="2">100</td> <td></td> <td>Conversion Counts</td> <td colspan="2">100</td> <td></td> <td>Number of Scans:</td> <td>9</td> </tr> <tr> <td>Scan Motion:</td> <td colspan="2">Bi-directional</td> <td>Conversion Units</td> <td colspan="2">Inches</td> <td></td> <td>Conversion Units</td> <td colspan="2">Degrees</td> <td></td> <td>Head Rotate Position:</td> <td>0.00</td> </tr> <tr> <td>Correction:</td> <td colspan="2">Default</td> <td></td> <td colspan="2"></td> <td></td> <td>Radius In.</td> <td colspan="2">85.43</td> <td></td> <td>Hoist (Pivot Point):</td> <td>N/A</td> </tr> </tbody> </table>										Scan Controller Parameters			Increment Axis		Planned	Actual	Scan Axis		Planned	Actual	Positional Parameters		Controller:	PaR		Lower Limit	2238		2601	Lower Limit	9000		9000	Beam Direction:	Cw/Ccw	Scan:	Circumferential		Upper Limit	2958		2972	Upper Limit	9000		9000	Transducer Size:	1.00	Increment:	Radial		Increment Interval	90			DCI	7			Code % of Overlap:	10	Mode:	Automatic Scan		Conversion Counts	100			Conversion Counts	100			Number of Scans:	9	Scan Motion:	Bi-directional		Conversion Units	Inches			Conversion Units	Degrees			Head Rotate Position:	0.00	Correction:	Default						Radius In.	85.43			Hoist (Pivot Point):	N/A																
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Channel 8	Off	N/A	N/A	N/A	N/A																																																																																																															
						0803301		outlet nozzle integral extension.																																																																																																												
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Analyst / SNT Level / Date: Nem Barrera III 12 March 2005																																																																																																																				

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 105

Page 1 of 2

Watts Bar Unit 1
RPV-N15
Outlet Nozzle to Shell @ 338 Deg

Cursor Box 1 of 1	
Scan Axis	90.76 - 92.93
Inc. Axis	21.16 - 24.76
Depth In Material	6.63 - 7.79

	Channel 1
Module Coordinates	
Inc. Axis	25.77 - 29.30
Scan Axis	102.18 - 104.35

	Channel 2
Module Coordinates	
Inc. Axis	25.77 - 29.30
Scan Axis	79.36 - 81.53

	Channel 3
Module Coordinates	
Inc. Axis	27.53 -
Scan Axis	101.13 - 103.30

	Channel 4
Module Coordinates	
Inc. Axis	27.53 -
Scan Axis	80.41 - 82.58

	Channel 5
Module Coordinates	
Inc. Axis	25.77 - 29.30
Scan Axis	97.84 - 100.01

	Channel 5
Feature Analysis	Summary
Comments	No recordable indications chs 1, 2,
:	3, & 4.
:	
:	

C. M. Bauer III 12 March 2005

Site/Plant : Watts Bar		Weld Identification: RPV-N15		Pre/Rev/Chg/ICN: ISwT-PDI-AUT/0/0/1&2		Examination No.: 106	
Project No.: 04-0368		Weld Description: Outlet Noz-to-Sh @ 338"		Device Configuration: WAT-WALCON-0001			
Mod.Conf.: 08A		Scan Path Drawing: SPNOZOUT		Exam Date		Examination Time	
Data Acquisition Operator (s) / SNT Level: Sergey Vinogradov / N/A Kelly Daigle / N/A				13-Mar-05		Start End	
						78 78	
Scan Controller Parameters		Increment Axis		Planned		Actual	
Controller: PaR		Lower Limit		500		500	
Scan: Radial		Upper Limit		36615		36615	
Increment: Circumferential		Increment Interval		155		155	
Mode: Automatic Scan		Conversion Counts		100		100	
Scan Motion: Bi-directional		Conversion Units		Degrees		Degrees	
Correction: Default		Radius In.		88.19		88.19	
Module Parameters: 08A		Cal 34		Calibration Records:		Examination Notes:	
Status Angle Direction Scan Offset Step Offset		WAT-34		Check for limitations due to the proximity / configuration of the			
Channel 1 Off N/A N/A N/A N/A		N/A		outlet nozzle integral extension.			
Channel 2 Off N/A N/A N/A N/A		N/A					
Channel 3 On SLIC 40 (-) - 1.72(in) + 2.00(in)		0803403		Examination Remarks:			
Channel 4 On SLIC 40 (-) - 1.72(in) - 2.00(in)		0803404		Nozzle Center Hoist Position - 8398			
Channel 5 On SLIC 40 (+) - 1.72(in) + 0.00(in)		0803405		Boom Rotate Nozzle Center Position - 33800			
Channel 6 Off N/A N/A N/A N/A		N/A		Limited examination due to the proximity of the outlet nozzle integral			
Channel 7 Off N/A N/A N/A N/A		N/A		extension.			
Channel 8 Off N/A N/A N/A N/A		N/A					
Increment & Scan Positions Actual		Recordable Indications		Analyst Remarks			
Scan No.(s)		Increment Position		Scan Position		Recordable Indications	
Start Stop		Start Stop		Channel 1 ☐ ☐ ☒		Attachment: ☐ Yes ☒ No	
1 - 233		500 36615		2226 3478		Further Evaluation	
						Required:	
						☐ Yes ☒ No	
						Archive Tape/CD No.:	
						10 A/B	
						Analysis Tape/CD No.:	
						N/A	
Analyst / SNT Level / Date:		C M Rauer		III		13 March 2005	

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 106

Page 1 of 1

Watts Bar Unit 1
RPV-N15
Outlet Nozzle to Shell @ 338 Deg

Cursor Box 1 of 1	
Scan Axis	25.02 - 26.26
Inc. Axis	36.00 - 49.95
Depth In Material	1.45 - 2.01

	Channel 3
Module Coordinates	
Inc. Axis	35.49 - 49.45
Scan Axis	27.94 - 29.18

	Channel 4
Module Coordinates	
Inc. Axis	38.75 - 52.83
Scan Axis	27.94 - 29.18

	Channel 5
Module Coordinates	
Inc. Axis	36.24 - 51.69
Scan Axis	25.54 - 26.78

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 1, 2,
:	& 3.
:	
:	

Reviewed By

C. M. Bauer

SNT Level

III

Date

13 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

ISWT Examination Summary Record											
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300017			
Examination Area: Line/Assembly: Identification:		Reactor Pressure Vessel Nozzle to Shell Weld N-16 Outlet Nozzle at 202-degrees									
NDE Method	Procedure Rev./Chg./ICN	Exam Number(s)	Exam Angle	J	E	Analysis	Resolution Record	CNF No.	Remarks		
AUT	ISWT-PDA-AUT1/0/0 ICN 2	81 82 81 81	AUTG AUTSLK40 AUT SLIC40T AUT55T	-	-	CB CB CB			AUTO for thickness measurement only. Examinations performed from vessel shell were limited due to nozzle integral extension.		
	ISWT-PDA-AUT4/0/0	75-80	AUT PA18	X	-	CB			Examinations performed from nozzle bore.		
Prepared By: <i>Glady Lagdon</i>				Date: 13-Mar-05				Page: 1 OF 1		Summary No: 300017	

*SAT
BNE
6/2/05
ANIE*

Site/Plant:	Watts Bar	Weld Identification:	RVP-NI6	Pre/Rev/Cfg/PIC:	I\$WT-PDI-AUT4/O/O	Examination No.:	75	
Project No.:	04-0368	Weld Description:	Oat Non-to-Sh @ 202° (5'-65")	Device Configuration:	WAT-NOZCON-0001			
Mod.Conf.:	30	Scan Path Drawing:	SPNOZOIT	Exam Date:	08 March 2005	Examination Time:	Start End	
Data Acquisition Operator(s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A						Surface Temperature °F	Start End	
						6215	0224	
						76	76	
Data Acquisition								
Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	
Controller:	PzR	Lower Limit	85.42	85.42	Lower Limit	5.00	5.00	
Scan:	Head Rotate	Upper Limit	107.42	107.42	Upper Limit	65.00	65.00	
Increment:	Boom Extend	Increment Interval	1.00		Resolution	0.20		
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		
Correction:	Default				Radius tn.	14.50		
						Beam Direction:	Two	
						Transducer Size:	22mm x 45mm	
						Code % of Overlap:	N/A	
						Number of Scans:	23	
						Boom Rotate Position:	202.00	
						Hoist @ Nozzle C/L	83.98	
Module Parameters:				Cal 201	Calibration Records:	Examination Notes:		
	Status	Angle	Direction	Scan Offset	Stop Offset	WAT 201		
Channel 1	On	PA16-L	(-) + 90.00(deg)	+ 0.00(in)		1200201		
Channel 2	On	PA16-S	(-) + 90.00(dcg)	+ 0.00(in)		1200201		
Channel 3	Off	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	Examination Remarks:		
Channel 5	Off	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A			
Data Analysis								
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks
Scan No.(S)	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: Analysis Type/CD No.: NIA
	Start	Stop	Start	Stop				
1 - 23	85.42	107.42	5.00	65.00	Channel 1 ☐	☒	☐	
					Channel 2 ☐	☒	☐	
					Channel 3 ☐	☐	☒	
					Channel 4 ☐	☐	☒	
					Channel 5 ☐	☐	☒	
					Channel 6 ☐	☐	☒	
					Channel 7 ☐	☐	☒	
					Channel 8 ☐	☐	☒	
Analyst / SNT Level / Date: Paul M. Bauer / III / 08 March 2005								

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 III SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD										
Site/Plant: Watts Bar		Weld Identification: RPV-N16		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 76				
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 202° (64°-12)		Device Configuration: WAT-NOZCON-0001						
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time: Start 0219 End 0239		Surface Temperature °F: Start 76 End 76		
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A										
Data Acquisition										
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis		
Controller: PaR		Lower Limit		85.42		85.42		Planned		
Scan: Head Rotate		Upper Limit		107.42		107.42		Actual		
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20		
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100		
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees		
Correction: Default						Radius in.		14.50		
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:		
Status		Angle		Direction		Scan Offset		Step Offset		
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)		
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)		
Channel 3 Off		N/A		N/A		N/A		N/A		
Channel 4 Off		N/A		N/A		N/A		N/A		
Channel 5 Off		N/A		N/A		N/A		N/A		
Channel 6 Off		N/A		N/A		N/A		N/A		
Channel 7 Off		N/A		N/A		N/A		N/A		
Channel 8 Off		N/A		N/A		N/A		N/A		
Data Analysis										
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks		
Scan No.(s)		Increment Position		Scan Position		Yes No N/A			Attachment:	
		Start	Stop	Start	Stop				☐ Yes ☒ No Further Evaluation Required:	
1 - 23		85.42	107.42	64.00	125.04	Channel 1	☐	☒	☐	☐ Yes ☒ No Archive Tape/CD No.: Analysis Tape/CD No.:
						Channel 2	☐	☒	☐	
						Channel 3	☐	☐	☒	
						Channel 4	☐	☐	☒	
						Channel 5	☐	☐	☒	
						Channel 6	☐	☐	☒	
						Channel 7	☐	☐	☒	
						Channel 8	☐	☐	☒	
Analyst / SNT Level / Date: <i>Cal M. Bauer</i> / III / 08 March 2005										

ISWT FORM No. UT 50 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N16		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 77			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 202" (124" x 1)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time: Start 0242 End 0251		Surface Temperature °F: Start 76 End 76	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A									
Data Acquisition									
Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	85.42	85.42	Lower Limit	124.00	124.00	Beam Direction:	Twd
Scan:	Head Rotate	Upper Limit	107.42	107.42	Upper Limit	185.04	185.04	Transducer Size:	22mm x 45mm
Increment:	Boom Extend	Increment Interval	1.00		Resolution	0.20		Code % of Overlap:	N/A
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	23
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Boom Rotate Position:	202.00
Correction:	Default				Radius In.	14.50		Hoist @ Nozzle C/L	83.98
Module Parameters: 30		Cal 201			Calibration Records: WAT-201		Examination Notes:		
	Status	Angle	Direction	Scan Offset	Stop Offset				
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 3	Off	N/A	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	N/A	Examination Remarks:		
Channel 5	Off	N/A	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Scan No.(s)	Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks	
	Increment Position		Scan Position		Yes	No	N/A	Attachment: ☐ Yes ☐ No	
1 - 23	Start 85.42	Stop 107.42	Start 124.00	Stop 185.04	Channel 1 ☐	☒	☐	Further Evaluation	
					Channel 2 ☐	☒	☐	Required:	
					Channel 3 ☐	☐	☒	☐ Yes ☒ No	
					Channel 4 ☐	☐	☒	Archive Tape/CD No.: 8	
					Channel 5 ☐	☐	☒	Analysis Tape/CD No.: N/A	
					Channel 6 ☐	☐	☒		
					Channel 7 ☐	☐	☒		
					Channel 8 ☐	☐	☒		
Analyst / SNT Level / Date: <i>Carl M. Banner</i> / III / 08 March 2005									

IWI FORM No. UT 58 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief I-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N16		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 78			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 202° (184°-2)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time: Start 0254 End 0301		Surface Temperature °F: Start 76 End 76	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius Ia.		14.50	
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Examination Remarks:									
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	Start	Stop	Start	Stop					
1 - 23	85.42	107.42	184.00	245.04	☐	☒	☐	☐	☐
					☐	☒	☐	☐	☐
					☐	☐	☒	☐	☐
					☐	☐	☐	☒	☐
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
					☐	☐	☐	☐	☒
Analyst / SNT Level / Date: J. M. Bann / III / 08 March 2005					Attachment: ☐ Yes ☒ No				
					Further Evaluation Required: ☐ Yes ☒ No				
					Archive Tape/CD No.: 8				
					Analysis Tape/CD No.: N/A				

ISWT FORM No. UT 50 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

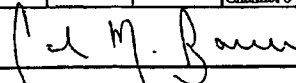
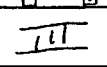
Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD																			
Site/Plant: Watts Bar		Weld Identification: RPV-N16		Pro/Rev/Chg/ICN: ISWT-FDI-AUT4/0/0/0		Examination No.: 79													
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 202° (244°-3)		Device Configuration: WAT-NOZCON-0001															
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time		Surface Temperature °F											
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A						Start: 0307 End: 0320		Start: 76 End: 76											
Data Acquisition																			
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis											
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit											
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit											
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20											
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100											
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees											
Correction: Default						Radius In.		14.50											
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:											
Status		Angle		Direction		Scan Offset		Step Offset											
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)											
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)											
Channel 3 Off		N/A		N/A		N/A		N/A											
Channel 4 Off		N/A		N/A		N/A		N/A											
Channel 5 Off		N/A		N/A		N/A		N/A											
Channel 6 Off		N/A		N/A		N/A		N/A											
Channel 7 Off		N/A		N/A		N/A		N/A											
Channel 8 Off		N/A		N/A		N/A		N/A											
Data Analysis																			
Increment & Scan Positions Actual					Recordable Indications					Analyst Remarks									
Scan No.(s)		Increment Position		Scan Position		Yes		No		N/A		Attachment:							
Start		Stop		Start		Stop		Channel 1		☐ Yes ☒ No		☐ Yes ☒ No							
1-23		85.42 107.42		244.00 305.04		Channel 2		☐ Yes ☒ No		Further Evaluation									
						Channel 3		☐ Yes ☒ No		Required:									
						Channel 4		☐ Yes ☒ No		☐ Yes ☒ No									
						Channel 5		☐ Yes ☒ No		Archive Tape/CD No.:									
						Channel 6		☐ Yes ☒ No		8									
						Channel 7		☐ Yes ☒ No		Analysis Tape/CD No.:									
						Channel 8		☐ Yes ☒ No		N/A									
Analyst / SNT Level / Date:										Jesse R. Delgado / III / 08 March 2005									

ISWT FORM No. UT-26 (Rev. 8/02)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief I-ISI-19

Attachments

 IH SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N16		Pro/Rev/Chg/ICN: ISWT-PDL-AUT4/0/0/0		Examination No.: 80			
Project No.: 04-0368		Weld Description: On Noz-to-Sh @ 202° (304°-3)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 08 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: Jesse R. Delgado / III Alan Schaefer / N/A						Start: 0324 End: 0333		Start: -76 End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00				Resolution	
Mode: Automatic Scan		Conversion Counts		100				Conversion Counts	
Scan Motion: Bi-directional		Conversion Units		Inches				Conversion Units	
Correction: Default								Radius In.	
Module Parameters: 30		Cal 201						Calibration Records:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks	
Increment Position		Scan Position		Yes			No		
Start		Stop		Start			Stop		
1 - 23		85.42 107.42		304.00 366.00			Channel 1 ☐ ☒ ☐		
							Channel 2 ☐ ☒ ☐		
							Channel 3 ☐ ☐ ☒		
							Channel 4 ☐ ☐ ☒		
							Channel 5 ☐ ☐ ☒		
							Channel 6 ☐ ☐ ☒		
							Channel 7 ☐ ☐ ☒		
							Channel 8 ☐ ☐ ☒		
Analyst / SNT Level / Date:				  08 March 2005					

ISWT FORM No. UT 50 (Rev. 05/02)

15WT FORM No. UT 50 (Rev. 05/02)

E4A-20

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 81

Page 1 of 2

Watts Bar Unit 1
RPV-N16
Outlet Nozzle to Shell @ 202 Deg

Cursor Box 1 of 1	
Scan Axis	90.76 - 92.93
Inc. Axis	21.16 - 24.76
Depth In Material	4.17 - 5.33

	Channel 1
Module Coordinates	
Inc. Axis	25.83 - 29.39
Scan Axis	99.80 - 101.97

	Channel 2
Module Coordinates	
Inc. Axis	25.83 - 29.39
Scan Axis	81.74 - 83.91

	Channel 3
Module Coordinates	
Inc. Axis	27.60 -
Scan Axis	99.80 - 101.97

	Channel 4
Module Coordinates	
Inc. Axis	27.60 -
Scan Axis	81.74 - 83.91

	Channel 5
Module Coordinates	
Inc. Axis	25.83 - 29.39
Scan Axis	97.84 - 100.01

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 1, 2,
:	3, & 4.
:	
:	

C. M. Bann III 12 March 2005

**Inservice Inspection Program
Request for Relief 1-ISI-19**

HWY FORM No. UT 56 (Rev. 05/02)

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 82

Page 1 of 1

Watts Bar Unit 1
RPV-N16
Outlet Nozzle to Shell @ 202 Deg

Cursor Box 1 of 1	
Scan Axis	25.02 - 26.26
Inc. Axis	36.00 - 49.95
Depth In Material	1.45 - 2.01

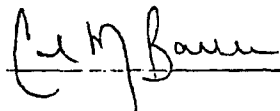
	Channel 3
Module Coordinates	
Inc. Axis	34.94 - 48.40
Scan Axis	27.94 - 29.18

	Channel 4
Module Coordinates	
Inc. Axis	38.10 - 51.49
Scan Axis	27.94 - 29.18

	Channel 5
Module Coordinates	
Inc. Axis	36.00 - 51.02
Scan Axis	25.54 - 26.78

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 1, 2,
:	& 3.
:	
:	

Reviewed By



SNT Level

III

Date

13 March 2005

ISwT Examination Summary Record									
Project No: 368				Site: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300016	
Examination Area:		Reactor Pressure Vessel							
Line/Assembly:		Nozzle to Shell Weld N-17							
Identification:		Outlet Nozzle at 158-degrees							
NDE	Procedure	Exam	Exam Angle	I	B	Analyt	Resolution Record	CNF No.	Remarks
Method	Rev./Chg./CN	Number(s)							
AUT	ISWT-PDI-AUT1/0/0	73	AUTO	-	-				AUTO for thickness measurement only. Examinations performed from vessel shell were limited due to nozzle integral extension.
	ICN 2	74	AUTSLIC40	X	-	CB			
		73	AUT SLIC40T	X	-	CB			
		73	AUTSST	X	-	CB			
	ISWT-PDI-AUT4/0/0	67-77	AUT PA18	X	-	CB			Examinations performed from nozzle bore.
Prepared By:		<i>Garry Laddner</i>				Date:		Page:	
		13-Mar-05				1 OF 1		Summary No: 300016	

Sent
PME
6/3/65
ANFL

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IIH SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISwT-PDI-AUT4/0/0/0		Examination No.: 67			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 158" (5'-65")		Device Configuration: WAT-NOZCON-0001					
Med.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 07 March 2005		Examination Time: Start 1703 End 1755		Surface Temperature °F: Start 76 End 76	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201		Calibration Records: WAT-201		Examination Notes:			
Status	Angle	Direction	Scan Offset	Step Offset					
Channel 1 On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201				
Channel 2 On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201				
Channel 3 Off	N/A	N/A	N/A	N/A	N/A				
Channel 4 Off	N/A	N/A	N/A	N/A	N/A				
Channel 5 Off	N/A	N/A	N/A	N/A	N/A				
Channel 6 Off	N/A	N/A	N/A	N/A	N/A				
Channel 7 Off	N/A	N/A	N/A	N/A	N/A				
Channel 8 Off	N/A	N/A	N/A	N/A	N/A				
Examination Remarks:									
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 23	85.42	107.42	5.00	65.00	☐	☒	☐	☐ Further Evaluation	
					☐	☐	☒	Required:	
					☐	☐	☒	☐ Yes ☒ No	
					☐	☐	☒	Archive Tape/CD No.:	
					☐	☐	☒	7	
					☐	☐	☒	Analysis Tape/CD No.:	
					☐	☐	☒	N/A	
Analyst / SNT Level / Date: C. M. Banner / III / 08 March 2005									

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISWT-PD1-AU14/0/0		Examination No.: 68			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 158° (64°-12		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 07 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II						Start End		Start End	
						1757 1807		76 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 23	85.42	107.42	64.00	125.04	Channel 1 ☐	☒	☐	☐ Yes ☒ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒		
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>C. M. Bauer</i> / <i>III</i> / <i>08 March 2005</i>									

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 69			
Project No.: 04-0368		Weld Description: Out Noz-to Sh @ 158" (124"-1		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 07 March 2005		Examination Time		Surface Temperature *F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II						Start: 1814 End: 1823		Start: 76 End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis	Planned	Actual	Scan Axis	Planned	Actual	Positional Parameters	
Controller:	PaR	Lower Limit	85.42	85.42	Lower Limit	124.00	124.00	Beam Direction:	Twd
Scan:	Head Rotate	Upper Limit	107.42	107.42	Upper Limit	185.04	185.04	Transducer Size:	22mm x 45mm
Increment:	Boom Extend	Increment Interval	1.00		Resolution	0.20		Code % of Overlap:	N/A
Mode:	Automatic Scan	Conversion Counts	100		Conversion Counts	100		Number of Scans:	23
Scan Motion:	Bi-directional	Conversion Units	Inches		Conversion Units	Degrees		Boom Rotate Position:	158.00
Correction:	Default				Radius In.	14.50		Hoist @ Nozzle C/L:	83.98
Module Parameters: 30		Cal 201			Calibration Records:		Examination Notes:		
	Status	Angle	Direction	Scan Offset	Step Offset	WAT-201			
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 3	Off	N/A	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	N/A		Examination Remarks:	
Channel 5	Off	N/A	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1 - 23	85.42	107.42	124.00	185.04	Channel 1 ☐	☒	☐	☐ Yes ☒ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒		
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>CEM Bauer</i> / III / 08 March 2005									

ISWT FORM No. UT-26 (Rev. 06/92)

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD										
Site/Plant: Watts Bar			Weld Identification: RPV-N17			Pre/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 79		
Project No.: 04-0368			Weld Description: Out Noz-to-Sh @ 158" (184"-2)			Device Configuration: WAT-NOZCON-0001				
Mod.Conf.: 30			Scan Path Drawing: SPNOZOUT			Exam Date: 07 March 2005		Examination Time: Start 1824, End 1834		
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II								Surface Temperature °F: Start 76, End 76		
Data Acquisition										
Scan Controller Parameters Controller: PaR Scan: Head Rotate Increment: Boom Extend Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default			Increment Axis		Planned	Actual	Scan Axis		Planned	Actual
			Lower Limit		85.42	85.42	Lower Limit		184.00	184.00
			Upper Limit		107.42	107.42	Upper Limit		245.04	245.04
			Increment Interval		1.00		Resolution		0.20	
			Conversion Counts		100		Conversion Counts		100	
			Conversion Units		Inches		Conversion Units		Degrees	
							Radius In.		14.50	
Module Parameters: 30			Cal 201			Calibration Records: WAT-201		Examination Notes:		
Status		Angle	Direction	Scan Offset	Step Offset					
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201				
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201				
Channel 3	Off	N/A	N/A	N/A	N/A	N/A				
Channel 4	Off	N/A	N/A	N/A	N/A	N/A				
Channel 5	Off	N/A	N/A	N/A	N/A	N/A				
Channel 6	Off	N/A	N/A	N/A	N/A	N/A				
Channel 7	Off	N/A	N/A	N/A	N/A	N/A				
Channel 8	Off	N/A	N/A	N/A	N/A	N/A				
Data Analysis										
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	
	Start	Stop	Start	Stop						
1 - 23	85.42	107.42	184.00	245.04	☐	☒	☐	☐	☐	
					☐	☒	☐	☐	☐	
					☐	☐	☒	☐	☐	
					☐	☐	☐	☒	☐	
					☐	☐	☐	☐	☒	
					☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	
Analyst / SNT Level / Date:					<i>C. M. Banne</i> <i>III</i> <i>08 March 2005</i>					

ISWT FORM No. UT 59 (Rev. 05/93)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 ASME IHl SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 71			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 158° (244°)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 07 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleijan / II						Start: 1838		End: 1848	
						Start: 76		End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Attachment:	
Scan No.(s)		Increment Position		Scan Position		Yes	No	N/A	Yes ☐ No ☐
1 - 23		Start	Stop	Start	Stop	Channel 1 ☐	☒	☐	Further Evaluation
		85.42	107.42	244.00	305.04	Channel 2 ☐	☒	☐	Required:
						Channel 3 ☐	☐	☒	☐ Yes ☒ No
						Channel 4 ☐	☐	☒	Archive Tape/CD No.:
						Channel 5 ☐	☐	☒	Analysis Tape/CD No.:
						Channel 6 ☐	☐	☒	N/A
						Channel 7 ☐	☐	☒	
						Channel 8 ☐	☐	☒	
Analyst / SNT Level / Date: <i>C. M. Bauer</i> / <i>III</i> / <i>08 March 2005</i>									

ISWT FORM No. UT 58 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 72			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 158° (304°-3)		Device Configuration: WAT-NOZCON-0001					
Med.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 07 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II						Start: 1850		End: 1901	
						Start: 76		End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1 - 23	85.42	107.42	304.00	366.00	☐	☒	☐	☐ Yes ☒ No	
					☐	☒	☐	Further Evaluation	
					☐	☐	☒	Required:	
					☐	☐	☒	☐ Yes ☒ No	
					☐	☐	☒	Archive Tape/CD No.:	
					☐	☐	☒	7	
					☐	☐	☒	Analysis Tape/CD No.:	
					☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>Carl M. Bauer</i> / <i>III</i> / <i>08 Mar 2005</i>									

ISWT FORM No. UT-58 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N17		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 73			
Project No.: 04-0368		Weld Description: Outlet Noz-to-Sh @ 158°		Device Configuration: WAT-WALCON-0001					
Mod.Conf.: 09		Scan Path Drawing: SPNOZOUT		Exam Date: 12-Mar-05		Examination Time: Start 1301 End 1313		Surface Temperature °F: Start 78 End 78	
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II									
Scan Controller Parameters Controller: PaR Scan: Circumferential Increment: Radial Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default		Increment Axis Lower Limit: 2238 Upper Limit: 2958 Increment Interval: 90 Conversion Counts: 100 Conversion Units: Inches		Planned 2238 2958 90 100 Inches		Actual 2594 2955 7 100 Degrees 85.43		Positional Parameters Beam Direction: Cw/Ccw Transducer Size: 1.00 Code % of Overlap: 10 Number of Scans: 9 Head Rotate Position: 0.00 Hoist (Pivot Point): N/A	
Module Parameters: 09		Cal 33		Calibration Records: WAT-33		Examination Notes: Check for limitations due to the proximity / configuration of the outlet nozzle integral extension.			
Channel 1	On	55	(-)	- 7.53(in)	- 1.05(in)	0803301			
Channel 2	On	55	(+)	+ 7.53(in)	- 1.05(in)	0803302			
Channel 3	On	SLIC 40	(-)	- 9.95(in)	- 2.87(in)	0803303			
Channel 4	On	SLIC 40	(+)	+ 9.95(in)	- 2.87(in)	0803304	Examination Remarks:		
Channel 5	On	0L	(+)	- 10.56(in)	- 1.22(in)	0803305	Nozzle Center Hoist Position - 8398		
Channel 6	Off	N/A	N/A	N/A	N/A	N/A	Boom Rotate Nozzle Center Position - 15800		
Channel 7	Off	N/A	N/A	N/A	N/A	N/A	Limited examination due to the proximity of the outlet nozzle		
Channel 8	Off	N/A	N/A	N/A	N/A	N/A	integral extension.		
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	Start	Stop	Start	Stop					
5-9	2594	2955	9000	9000	☐	☒	☐	☐	☐
					Channel 6	☐	☒	☐	☐
					Channel 7	☐	☒	☐	☐
					Channel 8	☐	☒	☐	☐
Analyst / SNT Level / Date: <i>Lee My Bann III</i>					12 March 2005				

ISWT FORM No. UT-50 (Rev. 05/02)

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 73

Page 1 of 2

Watts Bar Unit 1
RPV-N17
Outlet Nozzle to Shell @ 158 Deg

Cursor Box 1 of 1	
Scan Axis	90.76 - 92.93
Inc. Axis	21.16 - 24.76
Depth In Material	6.63 - 7.79

	Channel 1
Module Coordinates	
Inc. Axis	25.86 - 29.40
Scan Axis	102.18 - 104.35

	Channel 2
Module Coordinates	
Inc. Axis	25.86 - 29.40
Scan Axis	79.36 - 81.53

	Channel 3
Module Coordinates	
Inc. Axis	27.61 -
Scan Axis	101.13 - 103.30

	Channel 4
Module Coordinates	
Inc. Axis	27.61 -
Scan Axis	80.41 - 82.58

	Channel 5
Module Coordinates	
Inc. Axis	25.86 - 29.40
Scan Axis	97.84 - 100.01

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 1, 2,
:	3, & 4.
:	
:	

C. M. Bann III 12 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD															
Site/Plant: Watts Bar			Weld Identification: RPV-N17			Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2			Examination No.: 74						
Project No.: 04-0368			Weld Description: Outlet Noz-to-Sh @ 158"			Device Configuration: WAT-WALCON-0001									
Mod. Cont.: 08A			Scan Path Drawing: SPNOZOUT			Exam Date: 13-Mar-05			Examination Time						
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III Kelly Daigle / N/A									Surface Temperature °F						
									Start End Start End						
									78 78						
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis		Planned		Actual		Positional Parameters	
Controller: PaR		Lower Limit		500		500		Lower Limit		1878		2226		Beam Direction: Twd/Awy	
Scan: Radial		Upper Limit		36615		36615		Upper Limit		3310		3478		Transducer Size: 1.00	
Increment: Circumferential		Increment Interval		155				DCI		4				Code % of Overlap: 10	
Mode: Automatic Scan		Conversion Counts		100				Conversion Counts		100				Number of Scans: 234	
Scan Motion: Bi-directional		Conversion Units		Degrees				Conversion Units		Inches				Head Rotate Position: 0.00	
Correction: Default		Radius In.		85.43										Hoist (Pivot Point): N/A	
Module Parameters: 08A Cal 34						Calibration Records: Examination Notes:									
Status Angle Direction Scan Offset Step Offset						WAT-34 Check for limitations due to the proximity / configuration of the									
Channel 1 Off N/A N/A N/A N/A						outlet nozzle integral extension.									
Channel 2 Off N/A N/A N/A N/A						N/A									
Channel 3 On SLIC 40 (-) - 1.72(in) + 2.00(in)						0803403									
Channel 4 On SLIC 40 (-) - 1.72(in) - 2.00(in)						0803404									
Channel 5 On SLIC 40 (+) - 1.72(in) + 0.00(in)						0803405									
Channel 6 Off N/A N/A N/A N/A						N/A									
Channel 7 Off N/A N/A N/A N/A						N/A									
Channel 8 Off N/A N/A N/A N/A						N/A									
						Examination Remarks:									
						Nozzle Hoist Centerline - 8398									
						Nozzle Boom Rotate Centerline - 15800									
						Limited examination due to the proximity of the outlet nozzle integral extension.									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks							
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:							
	Start	Stop	Start	Stop											
1 - 233	500	36615	2226	3478	Channel 1	☐	☐	☒	☐ Yes ☒ No						
					Channel 2	☐	☐	☒	Further Evaluation						
					Channel 3	☐	☒	☐	Required:						
					Channel 4	☐	☒	☐	☐ Yes ☒ No						
					Channel 5	☐	☒	☐	Archive Tape/CD No.:						
					Channel 6	☐	☐	☒	10 A/B						
					Channel 7	☐	☐	☒	Analysis Tape/CD No.:						
					Channel 8	☐	☐	☒	N/A						
Analyst / SNT Level / Date: Carlos M. Barrera III 13 March 2005															

ISWT FORM No. UT-50 (Rev. 05/03)

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 74

Page 1 of 1

Watts Bar Unit 1
RPV-N17
Outlet Nozzle to Shell @ 153 Deg

Cursor Box 1 of 1	
Scan Axis	25.02 - 26.26
Inc. Axis	36.00 - 49.95
Depth In Material	1.45 - 2.01

	Channel 3
Module Coordinates	
Inc. Axis	34.94 - 48.40
Scan Axis	27.94 - 29.18

	Channel 4
Module Coordinates	
Inc. Axis	38.11 - 51.55
Scan Axis	27.94 - 29.18

	Channel 5
Module Coordinates	
Inc. Axis	36.00 - 50.95
Scan Axis	25.54 - 26.78

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 1, 2,
:	& 3.
:	
:	

Reviewed By

C. M. Bauer

SNT Level

III

Date

13 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

ISWT Examination Summary Record											
Project No: 358				SR: Watts Bar Nuclear Plant Unit 1				Summary Sheet No.: 300013			
Examination Area:		Reactor Pressure Vessel									
Line/Assembly:		Nozzle to Shell Weld N-18									
Identification:		Outlet Nozzle at 22-degrees									
NDE Method	Procedure Rev/Chg/RCN	Exam Number(s)	Exam Angle	N I	H R	E R	Analysis	Resolution Record	CNF No.	Remarks	
AUT	ISWT-PDI-AUT1/D0 ICN 2	48	AUTO	-	-					AUTO for thickness measurement only. Examinations performed from vessel shell were limited due to nozzle integral extension.	
		50	AUTSLIC40	X	-		CB				
		48	AUT SLIC40T	X	-		CR				
			48	AUTSST	X	-		CR			
		ISWT-PDI-AUT4/D0	48-48	AUT PA16	-	X		CB	020001	WBN001	Examinations performed from nozzle bore. Two Code acceptable flaw indications.

Prepared By: <i>Geoffrey Lagleder</i>	Date: 13-Mar-05	Page: 1 OF 1	Summary No: 300013
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SJT
BWT
6/3/05
ANSE

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD												
Site/Plant: Watts Bar			Weld Identification: RPV-N18			Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0			Examination No.: 43			
Project No.: 04-0368			Weld Description: Out Noz-to-Sh @ 22° (S°-65°)			Device Configuration: WAT-NOZCON-0001						
Mod.Conf.: 30			Scan Path Drawing: SPNOZOUT			Exam Date: 06 March 2005		Examination Time		Surface Temperature °F		
Data Acquisition Operator(s) / SNT Level: D.R. Kleinjan / II								Start: 1658		End: 1708		
								Start: 76		End: 76		
Data Acquisition												
Scan Controller Parameters			Increment Axis		Planned		Actual		Scan Axis		Planned	
Controller: PaR			Lower Limit		85.42		85.42		Lower Limit		5.00	
Scan: Head Rotate			Upper Limit		107.42		107.42		Upper Limit		65.00	
Increment: Boom Extend			Increment Interval		1.00				Resolution		0.20	
Mode: Automatic Scan			Conversion Counts		100				Conversion Counts		100	
Scan Motion: Bi-directional			Conversion Units		Inches				Conversion Units		Degrees	
Correction: Default									Radius In.		14.50	
Module Parameters: 30			Cal 201						Calibration Records:		Examination Notes:	
Status			Angle		Direction		Scan Offset		Step Offset		WAT-201	
Channel 1 On			PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)		1200201	
Channel 2 On			PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)		1200201	
Channel 3 Off			N/A		N/A		N/A		N/A		N/A	
Channel 4 Off			N/A		N/A		N/A		N/A		N/A	
Channel 5 Off			N/A		N/A		N/A		N/A		N/A	
Channel 6 Off			N/A		N/A		N/A		N/A		N/A	
Channel 7 Off			N/A		N/A		N/A		N/A		N/A	
Channel 8 Off			N/A		N/A		N/A		N/A		N/A	
Data Analysis												
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks				
Scan No.(s)		Increment Position		Scan Position		Yes No N/A		Attachment:				
		Start	Stop	Start	Stop			☒ Yes ☐ No				
1 - 23		85.42	107.42	5.00	65.00	Channel 1 ☒ ☐ ☐		Further Evaluation				
						Channel 2 ☐ ☒ ☐		Required:				
						Channel 3 ☐ ☐ ☒		☐ Yes ☒ No				
						Channel 4 ☐ ☐ ☒		Archive Tape/CD No.:				
						Channel 5 ☐ ☐ ☒		67 cm				
						Channel 6 ☐ ☐ ☒		Analysis Tape/CD No.:				
						Channel 7 ☐ ☐ ☒		N/A				
						Channel 8 ☐ ☐ ☒						
Analyst / SNT Level / Date: Carlos M. Barrera / III / 07 Mar 2005												

ISWT FORM No. UT 58 (Rev. 05/91)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief I-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pro/Rev/Chg/ICN: ISwT-PDI-AUT4/0/0/0		Examination No.: 44			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 22° (64°-125°)		Device Configuration: WAT-NOZZCON-0001					
Med.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 06 March 2005		Examination Time: Start 1713, End 1725		Surface Temperature °F: Start 76, End 76	
Data Acquisition Operator (s) / SNT Level: D. R. Klejan / II									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 3	Off	N/A	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	N/A		Examination Remarks:	
Channel 5	Off	N/A	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☒ Yes ☐ No	
1 - 23	85.42	107.42	64.00	125.04	Channel 1 ☒	☐	☐	☒ Yes ☐ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒	7	
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: Carlos M. Barrera / III/ 07 Mar 2005									

ISWT FORM No. UT-26 (Rev. 6/93)



ISWT INDICATION RESOLUTION RECORD

PROJECT No.: 04-0368		SITE: Watts Bar Unit 1		SHEET No: 020001	
EXAMINATION AREA (SYST / COMP) RPV		LINE / SUBASSEMBLY Nozzle to Shell Weld		(IDENTIFICATION) N-18	
EXAMINER: David R. Kleinjan		SNT LEVEL II		PROCEDURE NO. ISWT-PDI-AUT4 REV 0 CHG 0	
EXAMINER: N/A		SNT LEVEL N/A		EXAMINATION METHOD ☐ VT ☐ PT ☐ MT ☒ UT ☐ RT ☐ ET WELD TYPE ☐ CIRCUMFERENTIAL ☐ MERIDIONAL ☐ LONGITUDINAL ☒ NOZZLE-TO-SHELL OTHER:	
CALIBRATION SHEET(S) 1200201					
EXAMINATION RECORD SHEET No(s) 43, 44					
Two indications were detected and sized in the examination area of RPV nozzle-to-shell weld N-18. The indications were evaluated and found to be acceptable in accordance with the 1995/96 Edition of ASME Section XI Table IWB 3512-1.					
Indication # 1: Indication # 2:					
Azimuth 133.80-deg. 158.90-deg.					
Flaw Location OD surface sub-surface					
s-dimension N/A 1.20"					
t 10.83" 10.83"					
Length 0.83" 0.75"					
2a 0.45" 0.36"					
a 0.45" 0.18"					
a/l 0.50 0.24					
a/t 4.2 1.7					
Allowable a/t% 5.2 3.7					
ATTACHMENT		RESOLUTION BY		SNT LEVEL	
☒ YES		[Signature]		II	
☐ NO		REVIEWED BY		SNT LEVEL	
		[Signature]		III	
				DATE	
				08 March 2005	
				DATE	
				09 MAR 2005	

ISWT FORM UT-02 (REV. 07/99)

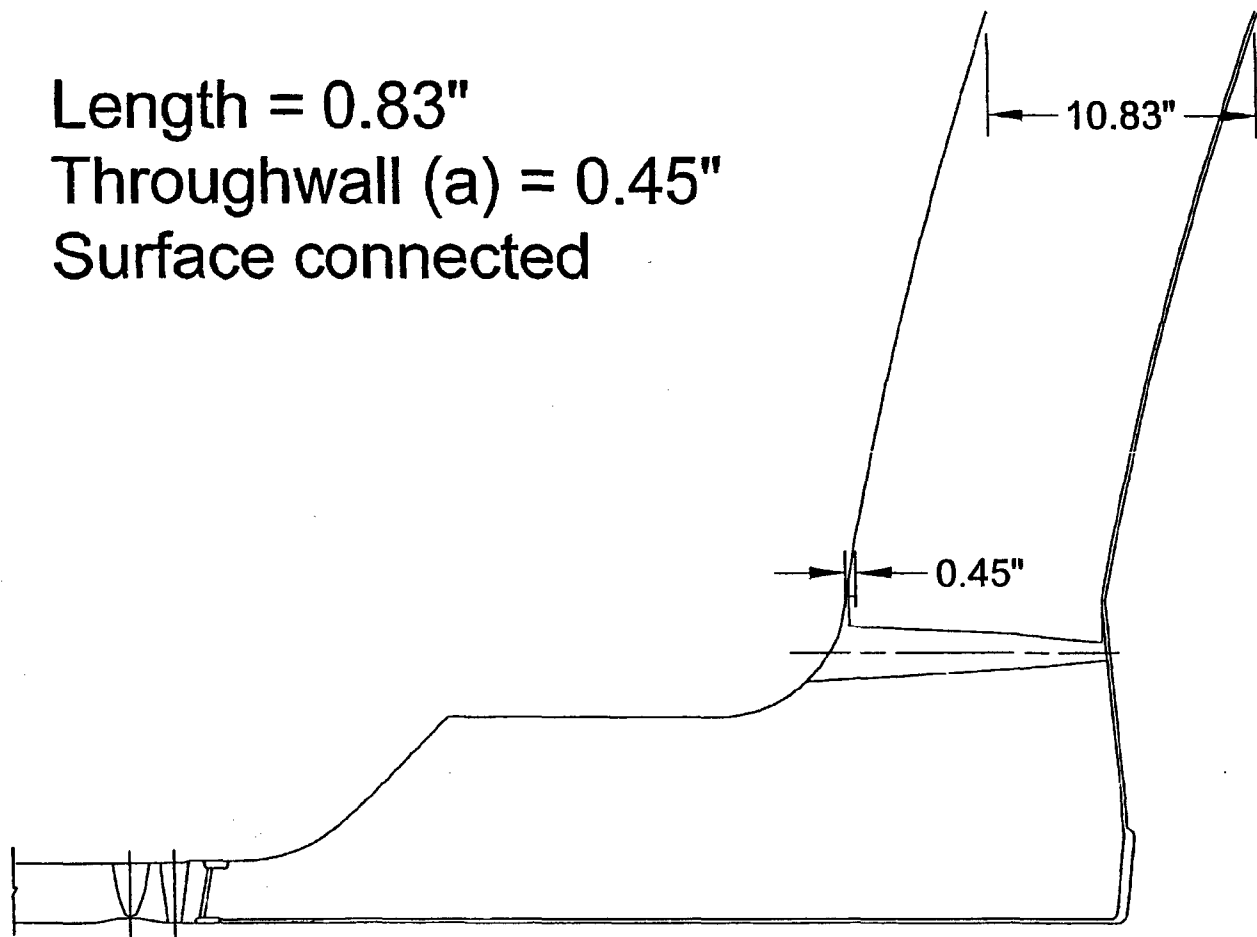
Watts Bar Nuclear Plant (WBN) Unit 1
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Enclosure 4

E4A-38

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
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Attachments

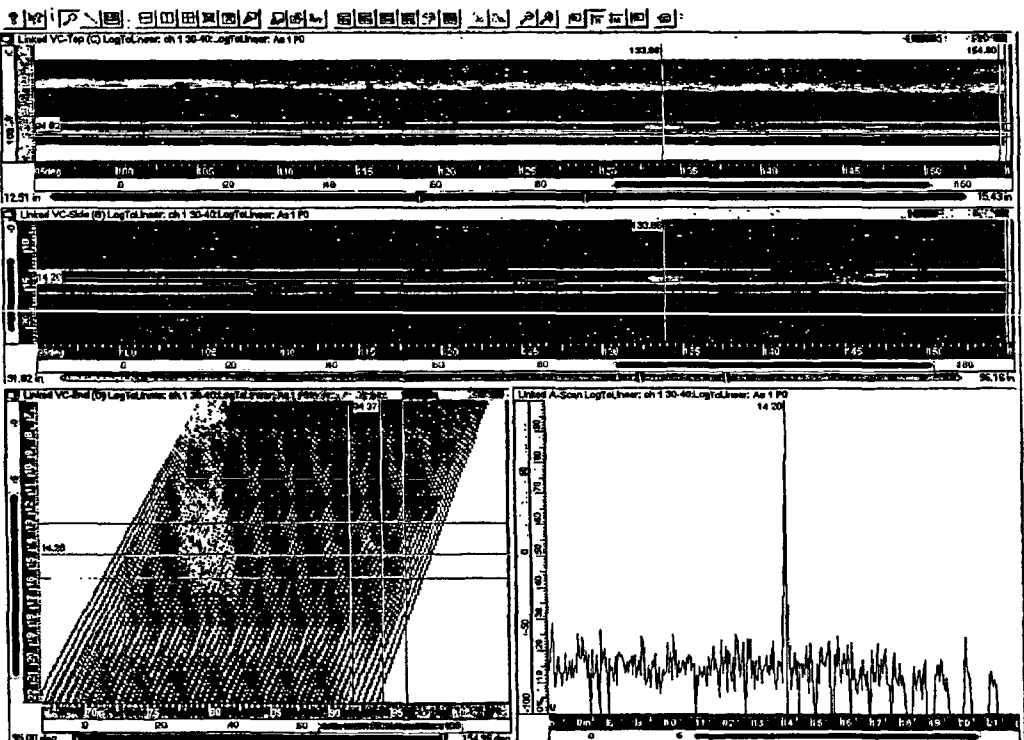


N-18 Exam 43 in^d. #1 @ 133.80°

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Attachments

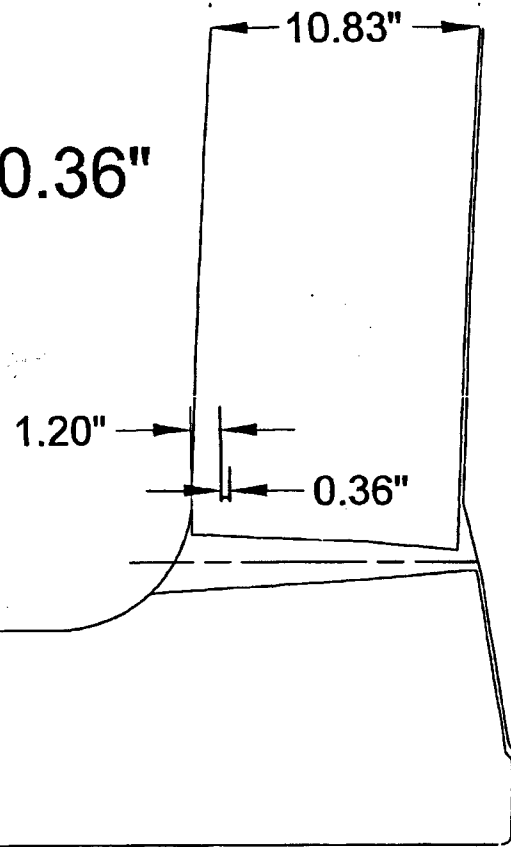
Examination #43 Indication #1



Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
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Attachments

Length = 0.75"
 Throughwall (2a) = 0.36"
 a = 0.18"
 Sub-surface



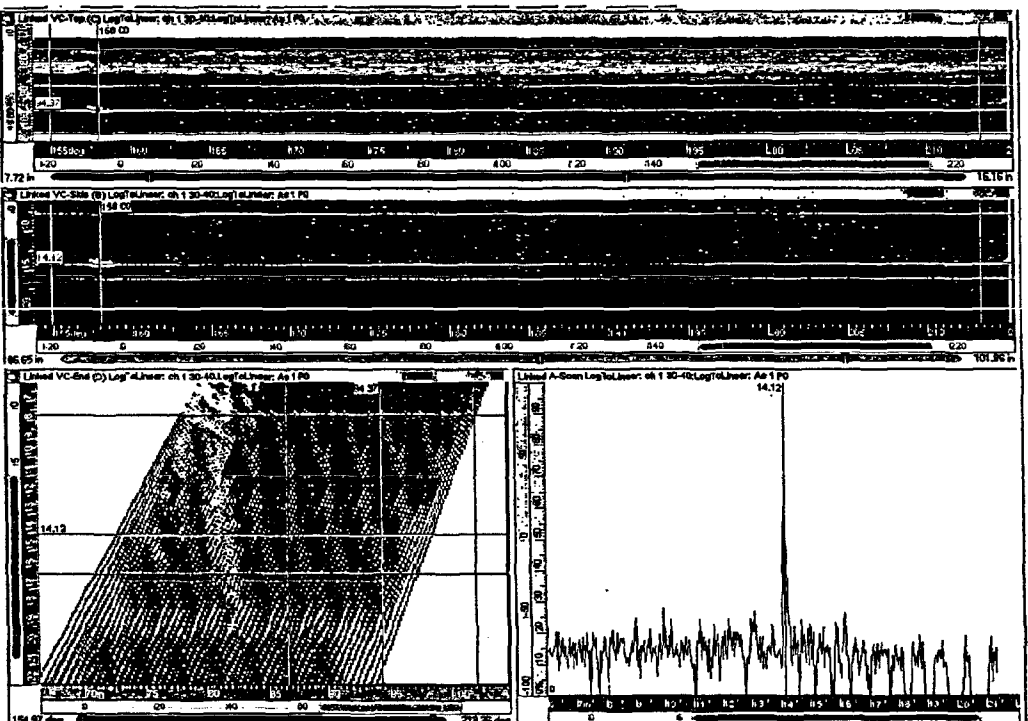
N-18 Exam 44 Ind. #2 @ 158.90°

Enclosure 4

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American Society of Mechanical Engineers (ASME)
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Request for Relief 1-ISI-19

Attachments

Examination #44 Indication #2



ISwT CUSTOMER NOTIFICATION FORM		
CITY : Kennesaw Valley Authority	SITE : Watts Bar 1	CNF No: WBN-001
Part I - ISwT Findings		
Project No. : 368	Type of Examination ☐ PSI ☒ ISI	NDT Method ☐ VT ☐ PT ☐ MT ☒ UT ☐ RT ☐ ET
Examination Date : 6-Mar-05		ISwT Procedure / Rev. ISwT-PDI-AUT4/0/0
Comments During the inservice examination of Outlet Nozzle to Shell Weld N-18, 2 flaw indications were detected. The Indications were sized and evaluated to ASME Section XI, Paragraph IWB-3000 and determined to be acceptable.		
Examination Reference : Summary Record 300013, Examination No. 43, Resolution Record 020001		
Signature of ISwT Representative : 		Date : 15-Mar-05
Part II - Customer Notification		
Notification Acknowledged by: 		Date : 3/15/05
Part III - Indication Disposition by Customer		
Comments Not Required.		
Signature of Customer Representative :		Date :
Part IV Reexamination		
Comments Not Required.		
Reexamination Reference : None		Date :
CNF Closed (Customer Representative Signature) 		Date : 3-15-05

ISwT FORM NDE-02 (REV. 07/99)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
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Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pre/Rev/Chg/ICN: ISWT-PDI-AUT4.0/0/0		Examination No.: 45			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 22° (124°-12)		Device Configuration: WAT-NOZCON-0001					
Mod.Coat: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 06 March 2005		Examination Time: Start 1727 End 1743		Surface Temperature °F: Start 76 End 76	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit 124.00 124.00	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit 185.04 185.04	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
	Status	Angle	Direction	Scan Offset	Step Offset				
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 3	Off	N/A	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	N/A		Examination Remarks:	
Channel 5	Off	N/A	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 23	85.42	107.42	124.00	185.00	Channel 1 ☐	☒	☐	☐ Yes ☒ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒	7	
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>C. M. Gann</i> / III / 07 March 2005									

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IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 46			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 22° (184°-24		Device Configuration: WAT-NOZCON-0001					
Mod.Cowl: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 06 March 2005		Examination Time: Start 1745, End 1800		Surface Temperature °F: Start 76, End 76	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II									
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In		14.50	
Module Parameters: 30		Cal 201				Calibration Records: WAT-201		Examination Notes:	
Channel 1	On	PA16-L	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 2	On	PA16-S	(-)	+ 90.00(deg)	+ 0.00(in)	1200201			
Channel 3	Off	N/A	N/A	N/A	N/A	N/A			
Channel 4	Off	N/A	N/A	N/A	N/A	N/A		Examination Remarks:	
Channel 5	Off	N/A	N/A	N/A	N/A	N/A			
Channel 6	Off	N/A	N/A	N/A	N/A	N/A			
Channel 7	Off	N/A	N/A	N/A	N/A	N/A			
Channel 8	Off	N/A	N/A	N/A	N/A	N/A			
Data Analysis									
Increment & Scan Positions Actual				Recordable Indications			Analyst Remarks		
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop				☐ Yes ☒ No	
1 - 23	85.42	107.42	184.00	245.04	Channel 1 ☐	☒	☐	☐ Yes ☒ No	
					Channel 2 ☐	☒	☐	Further Evaluation	
					Channel 3 ☐	☐	☒	Required:	
					Channel 4 ☐	☐	☒	☐ Yes ☒ No	
					Channel 5 ☐	☐	☒	Archive Tape/CD No.:	
					Channel 6 ☐	☐	☒	7	
					Channel 7 ☐	☐	☒	Analysis Tape/CD No.:	
					Channel 8 ☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>C. M. Bane</i> / III / 07 March 2005									

ISWT FORM NO. UT 56 (Rev. 05/92)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pro/Rev/Chg/ICN: ISwT-PDI-AUT4/0/0/0		Examination No.: 47			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 22" (244" x 30)		Device Configuration: WAT-NOZCON-0001					
Mod.Conf.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 06 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleijan / II						Start: 1814		End: 1825	
						Start: 76		End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		14.50	
Positional Parameters									
Beam Direction: Twd									
Transducer Size: 22mm x 45mm									
Code % of Overlap: N/A									
Number of Scans: 23									
Boom Rotate Position: 22.00									
Hoist @ Nozzle C/L: 83.98									
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
								Examination Remarks:	
Data Analysis									
Increment & Scan Positions Actual		Recordable Indications		Analyst Remarks					
Scan No.(s)		Increment Position		Scan Position		Yes		No	
Start		Stop		Start		Stop		Attachment:	
1 - 23		85.42		107.42		244.00		305.04	
								Channel 1 ☐ Yes ☒ No	
								Channel 2 ☐ Yes ☒ No	
								Channel 3 ☐ Yes ☒ No	
								Channel 4 ☐ Yes ☒ No	
								Channel 5 ☐ Yes ☒ No	
								Channel 6 ☐ Yes ☒ No	
								Channel 7 ☐ Yes ☒ No	
								Channel 8 ☐ Yes ☒ No	
								Attachment:	
								Further Evaluation	
								Required:	
								Archive Tape/CD No.:	
								Analysis Tape/CD No.:	
								N/A	
Analyst / SNT Level / Date: <i>C. M. Bann</i> / III 07 March 2005									

ISWT-PDI-AUT4 (Rev. 05/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
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Attachments

 HIH SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pro/Rev/Chg/ICN: ISWT-PDI-AUT4/0/0/0		Examination No.: 49			
Project No.: 04-0368		Weld Description: Out Noz-to-Sh @ 22° (304°-36)		Device Configuration: WAT-NOZCON-0001					
Mod. Cont.: 30		Scan Path Drawing: SPNOZOUT		Exam Date: 06 March 2005		Examination Time		Surface Temperature °F	
Data Acquisition Operator (s) / SNT Level: D. R. Kleinjan / II						Start: 1833		End: 1844	
						Start: 76		End: 76	
Data Acquisition									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		85.42		85.42		Lower Limit	
Scan: Head Rotate		Upper Limit		107.42		107.42		Upper Limit	
Increment: Boom Extend		Increment Interval		1.00		Resolution		0.20	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius in		14.50	
Module Parameters: 30		Cal 201				Calibration Records:		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		PA16-L		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 2 On		PA16-S		(-)		+ 90.00(deg)		+ 0.00(in)	
Channel 3 Off		N/A		N/A		N/A		N/A	
Channel 4 Off		N/A		N/A		N/A		N/A	
Channel 5 Off		N/A		N/A		N/A		N/A	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Data Analysis									
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks	
Scan No.(s)	Increment Position		Scan Position		Yes	No	N/A	Attachment:	
	Start	Stop	Start	Stop					
1-23	85.42	107.42	304.00	366.00	☐	☒	☐	☐ Yes ☒ No	
					☐	☒	☐	Further Evaluation	
					☐	☐	☒	Required:	
					☐	☐	☒	☐ Yes ☒ No	
					☐	☐	☒	Archive Tape/CD No.:	
					☐	☐	☒		
					☐	☐	☒	Analysis Tape/CD No.:	
					☐	☐	☒	N/A	
Analyst / SNT Level / Date: <i>C. M. Bauer / III</i> 07 March 2005									

ISWT FORM No. UT 50 (Rev. 04/02)

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD									
Site/Plant: Watts Bar		Weld Identification: RPV-NL8		Pre/Rev/Chg/ICN: ISWT-FDI-AUT1/00/1&2		Examination No.: 49			
Project No.: 04-0368		Weld Description: Outlet Noz-to-Sh @ 22°		Device Configuration: WAT-WALCON-0001		Surface Temperature °F			
Mod.Conf.: 09		Scan Path Drawing: SPNOZOUT		Exam Date: 12-Mar-05		Examination Time: Start 1137 End 1148		Start 78 End 78	
Data Acquisition Operator (s) / SNT Level: David R. Kleinjan / II									
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis	
Controller: PaR		Lower Limit		2238		2594		Planned	
Scan: Circumferential		Upper Limit		2958		2955		Actual	
Increment: Radial		Increment Interval		90		DCI		7	
Mode: Automatic Scan		Conversion Counts		100		Conversion Counts		100	
Scan Motion: Bi-directional		Conversion Units		Inches		Conversion Units		Degrees	
Correction: Default						Radius In.		85.43	
Module Parameters: 09		Cal 33				Calibration Records: WAT-33		Examination Notes:	
Status		Angle		Direction		Scan Offset		Step Offset	
Channel 1 On		55		(-)		- 7.53(in)		- 1.05(in)	
Channel 2 On		55		(+)		+ 7.53(in)		- 1.05(in)	
Channel 3 On		SLIC 40		(-)		- 9.95(in)		- 2.87(in)	
Channel 4 On		SLIC 40		(+)		+ 9.95(in)		- 2.87(in)	
Channel 5 On		OL		(+)		- 10.56(in)		- 1.22(in)	
Channel 6 Off		N/A		N/A		N/A		N/A	
Channel 7 Off		N/A		N/A		N/A		N/A	
Channel 8 Off		N/A		N/A		N/A		N/A	
Examination Remarks: Nozzle Center Hoist Position - 8398 Boom Rotate Nozzle Center Position - 2200 Limited examination due to the proximity of the outlet nozzle integral extension. Nozzle offset 40-degrees.									
Increment & Scan Positions Actual				Recordable Indications				Analyst Remarks	
Scan No.(s)		Increment Position		Scan Position		Yes No N/A		Attachments:	
Start Stop		Start Stop		Channel 1		☐ Yes ☒ No			
5 - 9		2594 2955		9000 9000		Channel 2 ☐ Yes ☒ No		Further Evaluation	
						Channel 3 ☐ Yes ☒ No		Required:	
						Channel 4 ☐ Yes ☒ No		☐ Yes ☒ No	
						Channel 5 ☐ Yes ☒ No		Archive Tape/CD No.:	
						Channel 6 ☐ Yes ☒ No		7 A/B	
						Channel 7 ☐ Yes ☒ No		Analysis Tape/CD No.:	
						Channel 8 ☐ Yes ☒ No		N/A	
Analyst / SNT Level / Date: <i>Cal M. Bauer III</i> 12 March 2005									

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
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Attachments

Exam Number 49

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Watts Bar Unit 1
RPV-N18
Outlet Nozzle to Shell @ 22 Deg

Cursor Box 1 of 1
Scan Axis 90.76 - 92.93
Inc. Axis 21.16 - 24.76
Depth In Material 6.63 - 7.79

Channel 1
Module Coordinates
Inc. Axis 25.86 - 29.45
Scan Axis 102.18 - 104.35

Channel 2
Module Coordinates
Inc. Axis 25.86 - 29.45
Scan Axis 79.36 - 81.53

Channel 3
Module Coordinates
Inc. Axis 27.63 -
Scan Axis 101.13 - 103.30

Channel 4
Module Coordinates
Inc. Axis 27.63 -
Scan Axis 80.41 - 82.58

Channel 5
Module Coordinates
Inc. Axis 25.86 - 29.45
Scan Axis 97.84 - 100.01

Channel 5
Summary
Feature Analysis
Comments
: No recordable indications chs 1, 2,
: 3, & 4.
:
:

C. M. Bauer III 12 March 2005

Inservice Inspection Program Request for Relief 1-ISI-19

Attachments

 3TH SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD														
Site/Plant : Watts Bar			Weld Identification: RPV-N18			Pro/Rev/Chg/ICN:		ISWI-PDI-AUT1/0/0/1&2		Examination No.: 50				
Project No.: 04-0368			Weld Description: Outlet Noz-to-Sh @ 22°			Device Configuration:		WAT-WALCON-0001						
Mod.Conf.: 08A			Scan Path Drawing: SPNOZOUT			Exam Date		Examination Time		Surface Temperature °F				
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III Kelly Daigle / N/A						13-Mar-05		Start		End				
								0930		1021		78		78
Scan Controller Parameters Controller: PaR Scan: Radial Increment: Circumferential Mode: Automatic Scan Scan Motion: Bi-directional Correction: Default,			Increment Axis		Planned		Actual		Scan Axis		Planned			
			Lower Limit		500		500		Lower Limit		1878		2226	
			Upper Limit		36615		24835		Upper Limit		3310		3478	
			Increment Interval		155				DCI		4			
			Conversion Counts		100				Conversion Counts		100			
			Conversion Units		Degrees		Conversion Units		Inches					
			Radius In.		88.19									
Module Parameters: 08A Cal 34						Calibration Records:		Examination Notes:						
Status Angle Direction Scan Offset Step Offset						WAT-34		Check for limitations due to the proximity / configuration of the						
Channel 1 Off N/A N/A N/A N/A						N/A		outlet nozzle integral extension.						
Channel 2 Off N/A N/A N/A N/A						N/A								
Channel 3 On SLIC 40 (-) - 1.72(in) + 2.00(in)						0803403								
Channel 4 On SLIC 40 (-) - 1.72(in) - 2.00(in)						0803404		Examination Remarks:						
Channel 5 On SLIC 40 (+) - 1.72(in) + 0.00(in)						0803405		Nozzle Hoist Centerline - 8398						
Channel 6 Off N/A N/A N/A N/A						N/A		Nozzle Boom Rotate Centerline - 2200						
Channel 7 Off N/A N/A N/A N/A						N/A		Limited examination due to the proximity of the outlet nozzle integr						
Channel 8 Off N/A N/A N/A N/A						N/A		extension. Partial examination.						
Increment & Scan Positions Actual					Recordable Indications			Analyst Remarks						
Scan No.(s)		Increment Position		Scan Position		Yes No N/A Channel 1 ☐ ☐ ☒ Channel 2 ☐ ☐ ☒ Channel 3 ☐ ☒ ☐ Channel 4 ☐ ☒ ☐ Channel 5 ☐ ☒ ☐ Channel 6 ☐ ☐ ☒ Channel 7 ☐ ☐ ☒ Channel 8 ☐ ☐ ☒			Attachment: ☐ Yes ☒ No Further Evaluation Required: ☐ Yes ☒ No Archive Tape/CD No.: 10 A/B Analysis Tape/CD No.: N/A					
		Start	Stop	Start	Stop									
1 - 158		500	24835	2226	3478									
Analyst / SNT Level / Date: <u>Carl M. Barrera III</u> <u>13 March 2005</u>														

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

xam Number 50

Page 1 of 1

Watts Bar Unit 1
RPV-N18
Outlet Nozzle to Shell @ 22 Deg

Cursor Box 1 of 1	
Scan Axis	25.02 - 26.26
Inc. Axis	36.00 - 49.95
Depth In Material	1.45 - 2.01

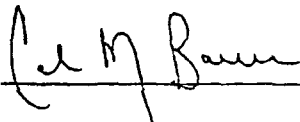
	Channel 3
Module Coordinates	
Inc. Axis	34.44 - 48.40
Scan Axis	27.94 - 29.18

	Channel 4
Module Coordinates	
Inc. Axis	37.55 - 51.50
Scan Axis	27.94 - 29.18

	Channel 5
Module Coordinates	
Inc. Axis	36.00 - 49.98
Scan Axis	25.54 - 26.78

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 3, 4,
:	& 5.
:	
:	

Reviewed By



SNT Level

III

Date

13 March 2005

Watts Bar Nuclear Plant (WBN) Unit 1
 American Society of Mechanical Engineers (ASME)
 Inservice Inspection Program
 Request for Relief 1-ISI-19

Attachments

 IHI SOUTHWEST TECHNOLOGIES AUTOMATED ULTRASONIC EXAMINATION RECORD															
Site/Plant: Watts Bar		Weld Identification: RPV-N18		Pro/Rev/Chg/ICN: ISWT-PDI-AUT1/0/0/1&2		Examination No.: 50a									
Project No.: 04-0368		Weld Description: Outlet Noz-to-Sh @ 22°		Device Configuration: WAT-WALCON-0001											
Mod. ConL: 08A		Scan Path Drawing: SPNOZOUT		Exam Date: 13-Mar-05		Examination Time: Start 0930 End 1021		Surface Temperature °F: Start 78 End 78							
Data Acquisition Operator (s) / SNT Level: Carlos M. Barrera / III Kelly Daigle / N/A															
Scan Controller Parameters		Increment Axis		Planned		Actual		Scan Axis		Planned		Actual		Positional Parameters	
Controller: PaR		Lower Limit		500		24370		Lower Limit		1878		2226		Beam Direction: Twd/Awy	
Scan: Radial		Upper Limit		36615		36615		Upper Limit		3310		3478		Transducer Size: 1.00	
Increment: Circumferential		Increment Interval		155				DCI		4				Code % of Overlap: 10	
Mode: Automatic Scan		Conversion Counts		100				Conversion Counts		100				Number of Scans: 234	
Scan Motion: Bi-directional		Conversion Units		Degrees				Conversion Units		Inches				Head Rotate Position: 0.00	
Correction: Default		Radius In.		88.19										Hoist (Pivot Point): N/A	
Module Parameters:		08A		Cal 34				Calibration Records:		Examination Notes:					
Status		Angle		Direction		Scan Offset		Step Offset		WAT-34		Check for limitations due to the proximity / configuration of the outlet nozzle integral extension.			
Channel 1		Off		N/A		N/A		N/A		N/A					
Channel 2		Off		N/A		N/A		N/A		N/A					
Channel 3		On		SLIC 40		(-)		- 1.72(in) + 2.00(in)		0803403					
Channel 4		On		SLIC 40		(-)		- 1.72(in) - 2.00(in)		0803404		Examination Remarks:			
Channel 5		On		SLIC 40		(+)		- 1.72(in) + 0.00(in)		0803405		Nozzle Hoist Centerline - 8398			
Channel 6		Off		N/A		N/A		N/A		N/A		Nozzle Boom Rotate Centerline - 2200			
Channel 7		Off		N/A		N/A		N/A		N/A		Limited examination due to the proximity of the outlet nozzle integral extension. Partial examination. Boom rotate offset 40-degrees.			
Channel 8		Off		N/A		N/A		N/A		N/A					
Increment & Scan Positions Actual					Recordable Indications					Analyst Remarks					
Scan No.(s)		Increment Position		Scan Position		Yes		No		N/A		Attachment:			
		Start		Stop		Start		Stop		Channel 1		☐ Yes ☒ No			
155 - 233		24370		36615		2226		3478		Channel 2		☐ Yes ☒ No			
										Channel 3		☐ Yes ☒ No			
										Channel 4		☐ Yes ☒ No			
										Channel 5		☐ Yes ☒ No			
										Channel 6		☐ Yes ☒ No			
										Channel 7		☐ Yes ☒ No			
										Channel 8		☐ Yes ☒ No			
										Attachment:					
										Further Evaluation					
										Required:					
										Archive Tape/CD No.:					
										10 A/B					
										Analysis Tape/CD No.:					
										N/A					
Analyst / SNT Level / Date: <i>Carl M. Barrera</i> III 13 March 2005															

ISWT FORM No. UT 50 (Rev. 05/93)

Enclosure 4

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-19

Attachments

Exam Number 50a

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Watts Bar Unit 1
RPV-N18
Outlet Nozzle to Shell @ 22 Deg

Cursor Box 1 of 1	
Scan Axis	25.02 - 26.26
Inc. Axis	36.00 - 49.95
Depth In Material	1.45 - 2.01

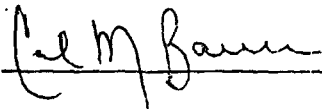
	Channel 3
Module Coordinates	
Inc. Axis	273.04 - 286.97
Scan Axis	27.94 - 29.18

	Channel 4
Module Coordinates	
Inc. Axis	276.13 - 290.03
Scan Axis	27.94 - 29.18

	Channel 5
Module Coordinates	
Inc. Axis	274.65 - 288.28
Scan Axis	25.54 - 26.78

	Channel 5
Feature Analysis	Summary
Comments	
:	No recordable indications chs 3, 4,
:	& 5.
:	
:	

Reviewed By



SN Level

III

Date 13 March 2005

ENCLOSURE 5

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
INSERVICE INSPECTION (ISI) PROGRAM

VENDOR EXAMINATION AREA COVERAGE REPORT

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Vendor Examination Area Coverage Report

**EXAMINATION AREA COVERAGE REPORT
FOR WATTS BAR NUCLEAR PLANT**

This appendix describes examination coverage achieved during the 2005 in-service inspection of the Watts Bar Nuclear Plant reactor pressure vessel (RPV). The examinations were performed using automated ultrasonic (AUT) scanning equipment and AUT data recording/analysis systems. The target scope of the RPV examinations included 100 percent of the accessible weld and/or component length of the following:

- 1) Circumferential shell welds, including the vessel shell to flange weld
- 2) Lower head meridional shell welds
- 3) Nozzle to shell welds
- 4) Nozzle to Safe End and Safe End to Nozzle Welds

Limitations were encountered at Watts Bar while examining the vessel, nozzle to shell, and lower head shell welds due to various physical conditions, such as the bottom head penetrations, the core barrel lugs, the outlet nozzle integral extensions, the inlet nozzle inner radii, and the flange configuration. Typically, limitations are not encountered on the nozzle to safe end and safe end to nozzle welds, except for severe inside surface contour variations, which were not encountered at Watts Bar.

1 Examination Coverage Requirements for Vessel Circumferential and Meridional Welds

The ISWT procedures for shell weld examinations are qualified for both single- and double-sided examinations. The double-sided technique, requiring two examination angles and four search units, is used when access is not restricted. The single-sided examination technique, requiring three examination angles and four search units, is utilized to provide additional coverage when access is restricted. The examination coverage requirements for these techniques are described below.

Single-Sided Examination (Reflectors Oriented Parallel and Transverse to the Weld)

- 1) The inner 3.25 inches including the weld metal and adjacent base metal for $\frac{1}{2}$ t either side of the weld fusion line must be completely scanned with both SLIC40 (50 and 70 degrees, shear and longitudinal waves) search units.
- 2) The weld metal and adjacent base material in the outer volume beyond 3.25 inches must be completely scanned with both 45° and 55° Duplex (45 and 55 degrees shear wave) search units.

Double-Sided Examination (Reflectors Oriented Parallel and Transverse to the Weld)

- 1) The inner 3.25 inches including the weld metal and adjacent base metal for $\frac{1}{2}$ t either side of the weld fusion line must be completely scanned with both SLIC 40 search units.
- 2) The weld metal and adjacent base material in the outer volume beyond 3.25 inches must be completely scanned with both 55° Duplex search units.

Watts Bar Nuclear Plant (WBN) Unit 1
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Vendor Examination Area Coverage Report

2 Examination Coverage Requirements for Nozzle to Shell Welds

Examination of the nozzle to shell welds is performed using the techniques described above from the vessel inside surface plus a PDI-qualified Phased Array examination performed from the nozzle bore. Coverage requirements for nozzle to shell weld examinations conducted from the vessel inside surface are similar to those described above, except that the weld metal and adjacent base material for $\frac{1}{2}$ " beyond the weld fusion line must be scanned with the applicable search units. The Phased Array procedure was designed to sweep two sets of sound beam angles (5 through 40 degrees longitudinal wave and 35 through 45 degrees shear wave) through the examination volume from the nozzle bore and achieve full coverage.

3 Examination Coverage Requirements for Nozzle to Safe End and Safe End to Nozzle Welds (Dissimilar Metal Welds)

Examination of the Safe End (Dissimilar Metal) welds is performed using a PDI-qualified Phased Array procedure that is designed to sweep one set of sound beam angles (60-88 degrees longitudinal wave) through the examination volume from the inside surface of the weld to achieve full coverage in four directions.

EXAMINATION COVERAGE CALCULATION

The following contains a description of the examination coverage calculation process:

1. Determine the examination scan ("x" and "y") coordinates necessary to obtain 100% of the required weld coverage (reference the examination planned "x" and "y" coordinates).
2. Multiply the delta difference of the planned "x" and "y" coordinates by each other to determine the planned scan area necessary to obtain 100% of the required weld coverage for both transverse and parallel examinations.
3. Multiply the delta difference of the actual "x" and "y" coordinates by each other to determine the actual scan area for both transverse and parallel examinations.
4. Divide the parallel actual scan area by the parallel planned scan area and the transverse actual scan area by the transverse planned scan area to determine the coverage percentage for each type of examination.
5. Compute the average of the parallel and the transverse examination values for the final coverage percentage.

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Vendor Examination Area Coverage Report

**Watts Bar Nuclear Power Station
2005 Reactor Vessel Inservice Examination
UT Coverage**

Summary Number	Weld Number	Exam Area Identification	Beam Angle(s)	Exam Type	Beam Direction(s)	Code Coverage	Remarks
300001	W03-04	Lower Shell -to- Lower Middle Shell	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	94% 100% 97%	Limited examination due to the proximity of the core barrel stabilizing lugs.
300002	W04-05	Lower Middle Shell -to- Upper Middle Shell	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300003	W05-06	Upper Middle Shell -to- Upper Shell	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	93% 100% 97%	Limited examination due to the outlet nozzle integral extensions and inlet nozzle bore radii.
300026	W02-03	Bottom Head -to- Lower Shell	SLIC 40/55° SLIC 40/55°	Parallel Parallel	2 directions 2 directions Average	76% 68% 72%	Limited examination due to the proximity of the core barrel stabilizing lugs.
300028	W01-02	Bottom Head Cap -to- Bottom Head Spherical Ring	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	54% 67% 60%	Limited examination due to the bottom head penetrations.
300006	W06-07	Upper Shell -to- Flange	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	100% 89% 95%	Limited examination due to the flange design.
300033	W2A	Lower Head Meridional @ 0°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	88% 70% 79%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.
300008	W2B	Lower Head Meridional @ 60°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	85% 82% 84%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.
300009	W2C	Lower Head Meridional @ 120°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	85% 85% 85%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.
300034	W2D	Lower Head Meridional @ 180°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	85% 85% 85%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.
300011	W2E	Lower Head Meridional @ 240°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	78% 61% 69%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.
300012	W2F	Lower Head Meridional @ 300°	SLIC 40/55° SLIC 40/55°	Parallel Transverse	2 directions 2 directions Average	73% 61% 67%	Limited examination due to the bottom head penetrations and core barrel stabilizing lugs.

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Vendor Examination Area Coverage Report

**Watts Bar Nuclear Power Station
2005 Reactor Vessel Inservice Examination
UT Coverage**

Summary Number	Weld Number	Exam Area Identification	Beam Angle(s)	Exam Type	Beam Direction(s)	Coverage	Remarks
300013	N-18	Outlet Nozzle -to- Shell @ 22°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	100% 51% 100% 76%	Limited examination due to the nozzle integral extension.
300014	N-14	Inlet Nozzle -to- Shell @ 67°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	96% 100% 100% 99%	Limited examination due to the nozzle inner radius.
300101	N-12	Inlet Nozzle -to- Shell @ 113°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	96% 100% 100% 99%	Limited examination due to the nozzle inner radius.
300016	N-17	Outlet Nozzle -to- Shell @ 158°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	100% 51% 100% 76%	Limited examination due to the nozzle integral extension.
300017	N-16	Outlet Nozzle -to- Shell @ 202°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	100% 51% 100% 76%	Limited examination due to the nozzle integral extension.
300018	N-13	Inlet Nozzle -to- Shell @ 247°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	96% 100% 100% 99%	Limited examination due to the nozzle inner radius.
300019	N-11	Inlet Nozzle -to- Shell @ 293°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	96% 100% 100% 99%	Limited examination due to the nozzle inner radius.
300020	N-15	Outlet Nozzle -to- Shell @ 338°	SLIC 40 SLIC 40/55° PA-16	Parallel Transverse Parallel (Bore)	2 directions 2 directions 1 direction Average	100% 51% 100% 76%	Limited examination due to the nozzle integral extension.

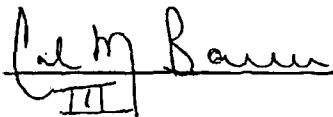
Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

Vendor Examination Area Coverage Report

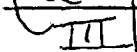
**Watts Bar Nuclear Power Station
2005 Reactor Vessel Inservice Examination
UT Coverage**

Summary Number	Weld Number	Exam Area Identification	Beam Angle(s)	Exam Type	Beam Direction(s)	Code Coverage	Remarks
300058	N-18-SE	Outlet Nozzle -to-Pipe @ 22°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300054	N-14-SE	Elbow -to- Inlet Nozzle @ 87°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300052	N-12-SE	Elbow -to- Inlet Nozzle @ 113°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300057	N-17-SE	Outlet Nozzle -to-Pipe @ 158°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300056	N-16-SE	Outlet Nozzle -to-Pipe @ 202°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300053	N-13-SE	Elbow -to- Inlet Nozzle @ 247°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300051	N-11-SE	Elbow -to- Inlet Nozzle @ 293°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	
300055	N-15-SE	Outlet Nozzle -to-Pipe @ 338°	PA 22 PA 22	Parallel Transverse	2 directions 2 directions Average	100% 100% 100%	

Prepared by:



SNT Level:



Date:

15 May 2005

ENCLOSURE 6

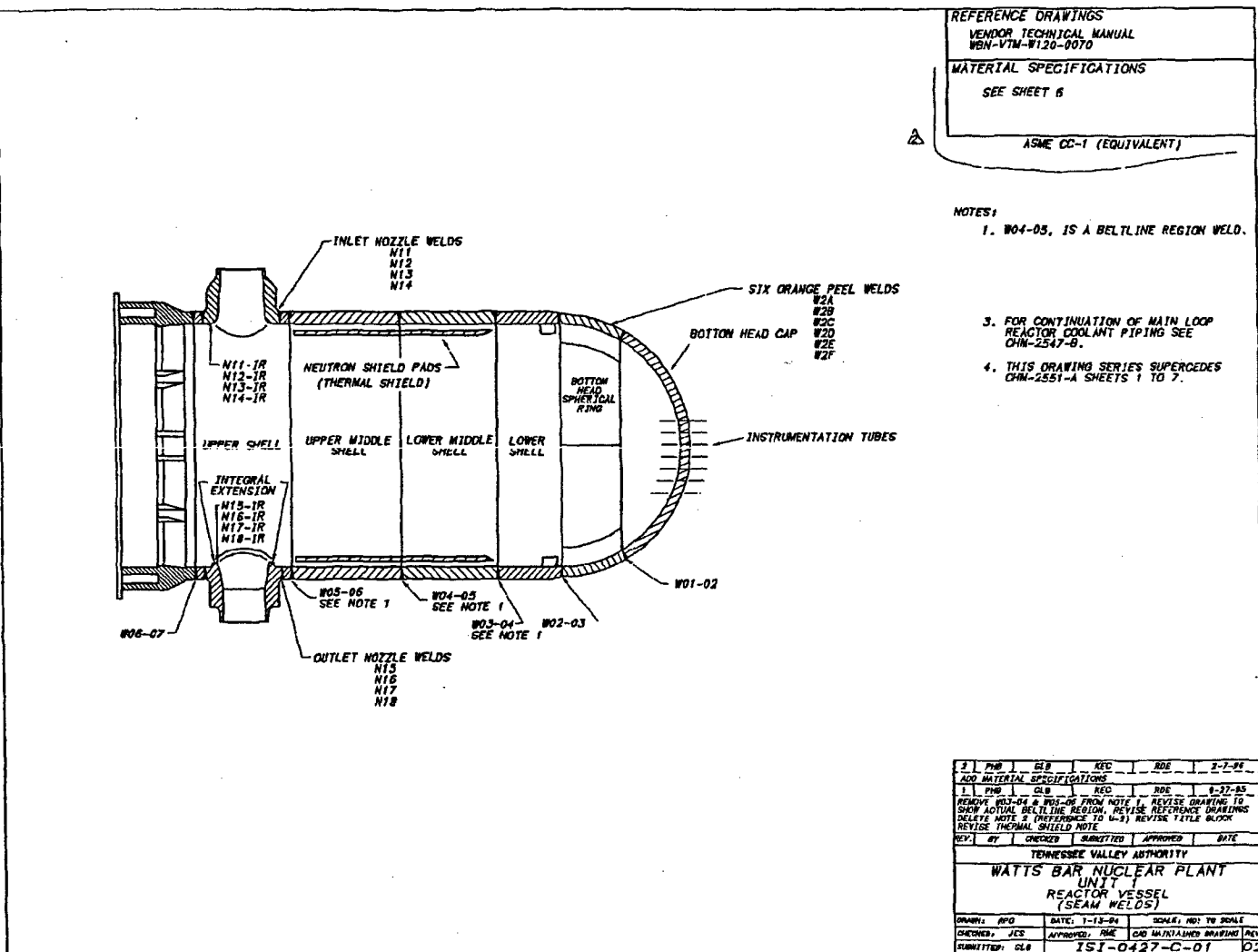
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
INSERVICE INSPECTION (ISI) PROGRAM

ISI DRAWINGS TO SUPPORT
RELIEF REQUEST 1-ISI-17, 1-ISI-18, AND 1-ISI-19

1. Drawing ISI-0427-C-01
2. Drawing ISI-4027-C-06

Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservice Inspection Program

ISI Drawings in Support of
Request for Relief 1-ISI-17, 1-ISI-18 & 1-ISI-19



Watts Bar Nuclear Plant (WBN) Unit 1
American Society Of Mechanical Engineers (ASME)
Inservic Inspection Program

Request for Relief 1-ISI-17, 1-ISI-18 & 1-ISI-19

